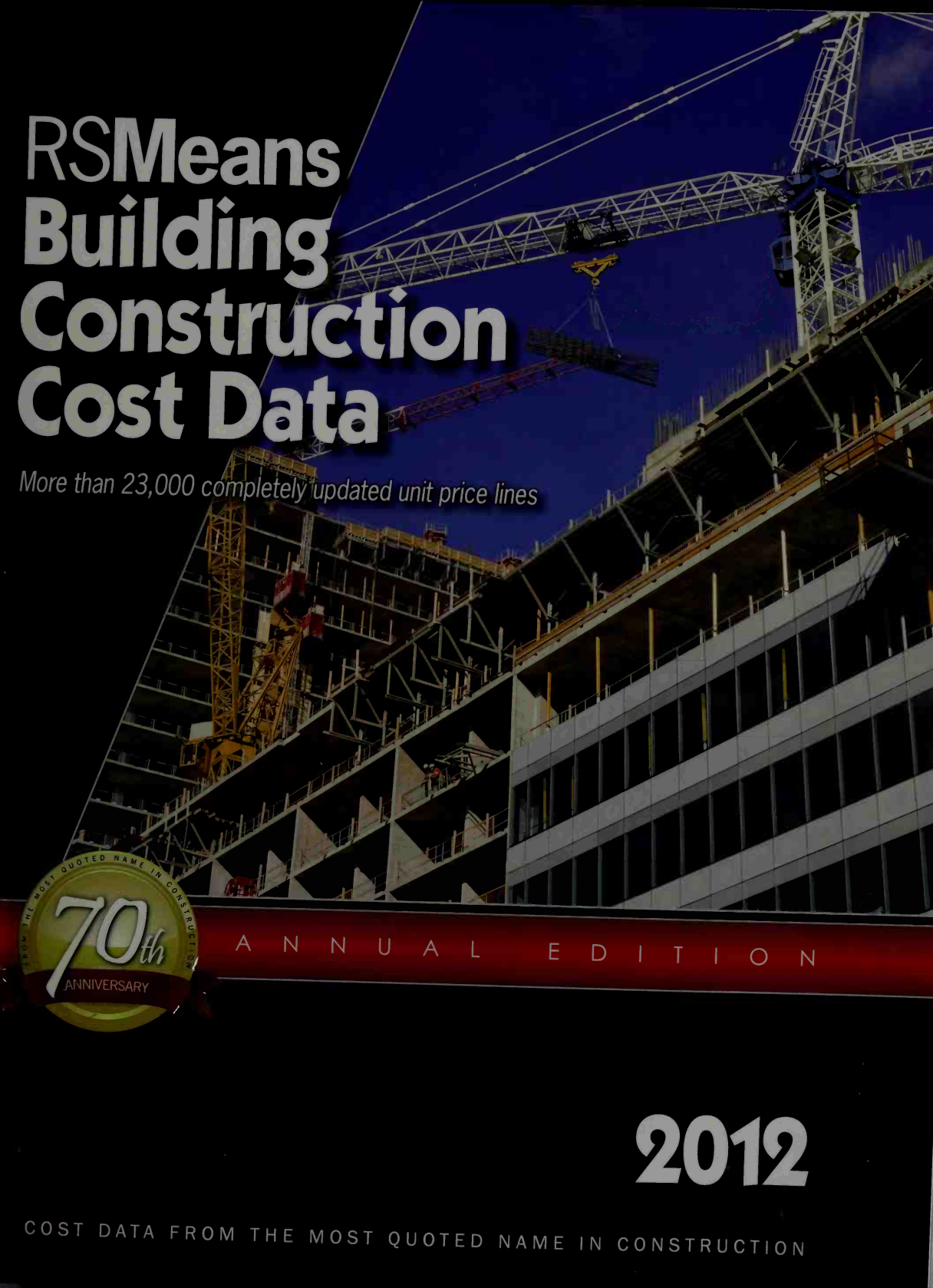




RSMeans Building Construction Cost Data

More than 23,000 completely updated unit price lines



A N N U A L E D I T I O N

2012

COST DATA FROM THE MOST QUOTED NAME IN CONSTRUCTION

Create estimates in **1/3 of the time**
with the industry's most reliable data!

RSMeans Online Cost Data

- ✓ Create Fast, Flexible Estimates.
- ✓ Get Localized Cost Data.
- ✓ Create Custom Cost Books.
- ✓ Stay Up-to-Date as Costs Change.

Save 10% by using promo code: **SV10-CSBK**

Visit www.RSMeans.com or call 1-800-334-3509



Be sure to keep up-to-date in 2012!

Register now and we'll notify you by email each quarter when the newest cost index is available free online.

Please provide your name, address, and email below and return this card by mail or fax: 1-800-632-6732.

or to register online:

www.reedconstructiondata.com/rsmeans/chgnotice/176028

Name

email Title

Company

Street

City/Town State/Prov. Zip/Postal Code

RSMeans

For Your Convenience: Bookmarks with special offers and useful tips and information on the back...

Refer-a-Friend and Save!



GIVE 10% off
to friends and
colleagues
AND
SAVE 10%
on your next
purchase!

Send your friends to
www.rsmeans.com with
promotion code:
REFR-FRND.
That's all they'll need!

Then, use the same
promotion code to save
on your next purchase!

Offer expires 8/1/12

RSMeans

RSMeans Professional Reference Books

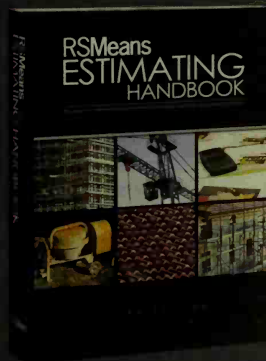
*developed by
industry experts.*

Featured Products:

*RSMeans Estimating
Handbook*

*Green Building:
Project Planning
and Cost Estimating*

Construction Supervision



Visit www.rsmeans.com to
view the full line of RSMeans
Reference Books

Exclusive: Try

RSMeans Online 50% Off

*As a current customer,
now's your chance to
get the benefits going
online at an exclusive
discount!*



With RSMeans Online:

Find materials, equipment,
and labor costs faster.

Adjust your location and
costs update automatically.

Stay up-to-date on costs
year-round.

*For a limited time, get
the online cost data
that matches this cost
book for 50% off!*

Call 1-800-334-3509
to order!

PLACE
STAMP
HERE

RSMeans
Quarterly Updates
700 Longwater Drive
Norwell, MA 02061
USA

Tips for Customizing Your RSMeans Cost Data By Location

The cost data found
throughout the book
reflects national averages.

Customize your cost data
for over 930 locations
throughout the U.S. and
Canada.

☒ To adjust costs to
your region, use the
Location Factors
found in the back of
the book.

☒ To compare costs
from region-to-
region, use the
City Cost Indexes
found in the back of
the book.

☒ For additional
guidance, refer to
the **How RSMeans
Data Works** section
towards the front of
the book.

RSMeans
Reed Construction Data

Metric Conversion Formulas			
Length		Area	
cm = 0.3937 in.	in. = 2.5400 cm	sq. in. = 6.4516 sq. cm	
meter = 3.2808 ft.	ft. = 0.3048 m	sq. ft. = 0.0929 sq. m	
meter = 1.0936 yd.	yd. = 0.9144 m	sq. yd. = 0.8361 sq. m	
km = 0.6214 mile	mile = 1.6093 km	acre = 0.4047 hectare	
		sq. km = 0.3861 sq. mile	sq. mile = 2.5900 sq. km
Weight		Weight, cont.	
gram = 15.4324 grains	grain = 0.0648 g	kg = 0.0011 ton (short)	ton (short) = 907.1848 kg
gram = 0.0353 oz.	oz. = 28.3495 g	ton (met.) = 1.1023 ton (short)	ton (short) = 0.9072 ton (met.)
kg = 2.2046 lbs.	lb. = 0.4536 kg	ton (met.) = 0.9842 ton (large)	ton (long) = 1.0160 ton (met.)

Common Units of Measure

Abbreviation	Measurement	Formula
SF	Square feet	Length (in feet) x Width (in feet)
SY	Square yards	Square feet / 9
CF	Cubic feet	Length (in feet) x Width (in feet) x Depth (in feet)
CY	Cubic yards	Cubic feet / 27
BF	Board foot	Length (in inches) x width (in inches) x thickness (in inches)/144
MBF	Thousand board foot	Board foot / 1,000
LF	Linear feet	12 inches of the item
SFCA	Square foot of contact area	A square foot of concrete formwork
SQ	Square	100 square feet
Ton	Ton	2,000 pounds

The 2012 *Building Construction Cost Data*, 70th Annual Edition, and all of the RSMeans annual cost data books are dedicated to the memory of our respected friend and colleague, Hsiao-Cheng (John) Chiang, PE.

2012

RSMeans

Division of Reed Construction Data
Construction Publishers & Consultants
20 Longwater Drive
Norwell, MA 02061

1-800-334-3509
www.rsmeans.com

Copyright 2011 by RSMeans
Division of Reed Construction Data
All rights reserved.

Printed in the United States of America
ISBN 0068-3531
ISBN 978-1-936335-29-9

The authors, editors, and engineers of RSMeans apply experience and judgment in locating and using reliable sources for the information published. However, RSMeans makes no express or implied warranty or guarantee in connection with the content of the information contained herein, including the accuracy, correctness, value, efficiency, or completeness of the data, methods, and other information contained herein. RSMeans makes no express or implied warranty of merchantability or fitness for any particular purpose. RSMeans shall have no liability to any customer or third party for any loss, expense, or damage, including consequential, incidental, special, or punitive damage, including lost profits or lost revenue, caused directly or indirectly by any error or omission, or arising out of or in connection with, the information contained herein.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without prior written permission of RSMeans. The cost data contained in this publication is valuable and proprietary information of RSMeans and others. There is no transfer to you of any ownership rights in the cost data or any license granted to you to create derivative works based on or which utilize the cost data.

RSMeans Building Construction Cost Data



70TH ANNUAL EDITION

Senior Editor

Phillip R. Waier, PE

Contributing Editors

Christopher Babbitt
Ted Baker
Barbara Balboni
Adrian C. Charest, PE
Gary W. Christensen
David G. Drain, PE
Cheryl Elsmore
Robert J. Kuchta
Robert C. McNichols
Melville J. Mossman, PE

Jeannene D. Murphy
Marilyn Phelan, AIA
Stephen C. Plotner
Eugene R. Spencer

Cover Design

Wendy McBay
Paul Robertson
Wayne Engebretson

President & CEO

Iain Melville

Vice President, Product & Development

Richard Remington

Vice President, Finance & Operations

David C. Walsh

Vice President, Data Acquisition & Fulfillment

Marco Piovesan

Chief Customer Officer

Lisa Fiondella

Senior Director, Product Management

Daimon Bridge

Vice President, Marketing & Business

Steven Ritchie

Engineering Director

Bob Mewis, CCC

Product Manager

Andrea Sillah

Product Marketing Manager

Ryan Cummings

Manager, Product Management

Jennifer Johnson

Production Manager

Michael Kokernak

Production Coordinator

Jill Goodman

Production Supervisor

Paula Reale-Camelio

Production

Jonathan Forgit
Mary Lou Geary
Debbie Panarelli
Sheryl A. Rose
Caroline Sullivan

Technical Support

Christopher Anderson
Tom Dion
Gary L. Hoitt
Genevieve Medeiros
Sharon Proulx
Kathryn S. Rodriguez



Related RSMeans Products and Services

This book is aimed primarily at commercial and industrial projects or large multi-family housing projects costing \$3,500,000 and up. For civil engineering structures such as bridges, dams, highways, or the like, please refer to *RSMeans Heavy Construction Cost Data*.

The engineers at RSMeans suggest the following products and services as companion information resources to *RSMeans Building Construction Cost Data*:

Construction Cost Data Books

Assemblies Cost Data 2012

Square Foot Costs 2012

Reference Books

Estimating Building Costs

RSMeans Estimating Handbook

Green Building: Project Planning & Estimating

How to Estimate with RSMeans Data

Plan Reading & Material Takeoff

Project Scheduling & Management for Construction

Seminars and In-House Training

Unit Price Estimating

Means CostWorks® Training

RSMeans Data for Job Order Contracting (JOC)

Practical Project Management for Construction Professionals

Scheduling with MSProject for Construction Professionals

Mechanical & Electrical Estimating

RSMeans on the Internet

Visit RSMeans at www.rsmeans.com for a one-stop portal for the most reliable and current resources available on the market. Here you can learn about our more than 20 annual cost data books, also available on CD and online versions, as well as about RSMeans seminars.

RSMeans Electronic Data

Get the information found in RSMeans cost books electronically on CD or on the Web at MeansCostWorks.com.

RSMeans Business Solutions

Cost engineers and analysts conduct facility life cycle and benchmark research studies and predictive cost modeling, as well as offer consultation services for conceptual estimating, real property management, and job order contracting. Research studies are designed with the application of proprietary cost and project data from Reed Construction Data and RSMeans' extensive North American databases. Analysts offer building product manufacturers qualitative and quantitative market

research, as well as time/motion studies for new products, and Web-based dashboards for market opportunity analysis. Clients are from both the public and private sectors, including federal, state, and municipal agencies; corporations; institutions; construction management firms; hospitals; and associations.

RSMeans for Job Order Contracting (JOC)

Best practice job order contracting (JOC) services support the owner in the development of their program. RSMeans develops all required contracting documents, works with stakeholders, and develops qualified and experienced contractor lists. RSMeans JOCWorks™ software is the best of class in the functional tools that meet JOC specific requirements. RSMeans data is organized to meet JOC cost estimating requirements.

Construction Costs for Software Applications

Over 25 unit price and assemblies cost databases are available through a number of leading estimating and facilities management software providers (listed below). For more information see the "Other RSMeans Products" pages at the back of this publication.

RSMeansData™ is also available to federal, state, and local government agencies as multi-year, multi-seat licenses.

- 4Clicks-Solutions, LLC
- ArenaSoft Estimating
- Assetworks
- Beck Technology
- BSD – Building Systems Design, Inc.
- CMS – Construction Management Software
- Corecon Technologies, Inc.
- CorVet Systems
- Hard Dollar Corporation
- Maxwell Systems
- MC²
- Parsons Corporation
- ProEst
- Sage Timberline Office
- UDA Technologies, Inc.
- US Cost, Inc.
- VFA – Vanderweil Facility Advisers
- WinEstimator, Inc.
- R & K Solutions
- Tririga

Table of Contents

Foreword	iv
How the Book Is Built: An Overview	v
Absolute Essentials for a Quick Start	vi
Estimating with RSMeans Unit Price Cost Data	vii
How to Use the Book: The Details	ix
Unit Price Section	1
Reference Section	665
Construction Equipment Rental Costs	667
Crew Listings	679
Historical Cost Indexes	712
CCI	713
Location Factors	756
Reference Tables	762
Change Orders	822
Square Foot Costs	827
Abbreviations	837
Index	841
Other RSMeans Products and Services	884
Labor Trade Rates including Overhead & Profit	Inside Back Cover

Foreword

Our Mission

Since 1942, RSMeans has been actively engaged in construction cost publishing and consulting throughout North America.

Today, more than 65 years after RSMeans began, our primary objective remains the same: to provide you, the construction and facilities professional, with the most current and comprehensive construction cost data possible.

Whether you are a contractor, owner, architect, engineer, facilities manager, or anyone else who needs a reliable construction cost estimate, you'll find this publication to be a highly useful and necessary tool.

With the constant flow of new construction methods and materials today, it's difficult to find the time to look at and evaluate all the different construction cost possibilities. In addition, because labor and material costs keep changing, last year's cost information is not a reliable basis for today's estimate or budget.

That's why so many construction professionals turn to RSMeans. We keep track of the costs for you, along with a wide range of other key information, from city cost indexes . . . to productivity rates . . . to crew composition . . . to contractor's overhead and profit rates.

RSMeans performs these functions by collecting data from all facets of the industry and organizing it in a format that is instantly accessible to you. From the preliminary budget to the detailed unit price estimate, you'll find the data in this book useful for all phases of construction cost determination.

The Staff, the Organization, and Our Services

When you purchase one of RSMeans' publications, you are, in effect, hiring the services of a full-time staff of construction and engineering professionals.

Our thoroughly experienced and highly qualified staff works daily at collecting, analyzing, and disseminating comprehensive cost information for your needs. These staff members have years of practical construction

experience and engineering training prior to joining the firm. As a result, you can count on them not only for accurate cost figures, but also for additional background reference information that will help you create a realistic estimate.

The RSMeans organization is always prepared to help you solve construction problems through its variety of data solutions, including online, CD, and print book formats, as well as cost estimating expertise available via our business solutions, training, and seminars.

Besides a full array of construction cost estimating books, RSMeans also publishes a number of other reference works for the construction industry. Subjects include construction estimating and project and business management, special topics such as green building and job order contracting, and a library of facility management references.

In addition, you can access all of our construction cost data electronically in convenient CD format or on the Web. Visit **MeansCostWorks.com** for more information on our 24/7 online cost data.

What's more, you can increase your knowledge and improve your construction estimating and management performance with an RSMeans construction seminar or in-house training program. These two-day seminar programs offer unparalleled opportunities for everyone in your organization to become updated on a wide variety of construction-related issues.

RSMeans is also a worldwide provider of construction cost management and analysis services for commercial and government owners.

In short, RSMeans can provide you with the tools and expertise for constructing accurate and dependable construction estimates and budgets in a variety of ways.

Robert Snow Means Established a Tradition of Quality That Continues Today

Robert Snow Means spent years building RSMeans, making certain he always delivered a quality product.

Today, at RSMeans, we do more than talk about the quality of our data and the usefulness of our books. We stand behind all of our data, from historical cost indexes to construction materials and techniques to current costs.

If you have any questions about our products or services, please call us toll-free at 1-800-334-3509. Our customer service representatives will be happy to assist you. You can also visit our Web site at www.rsmeans.com

How the Book Is Built: An Overview

The Construction Specifications Institute (CSI) and Construction Specifications Canada (CSC) have produced the 2010 edition of MasterFormat™, a system of titles and numbers used extensively to organize construction information.

All unit price data in the RSMeans cost data books is now arranged in the 50-division MasterFormat™ 2010 system.

A Powerful Construction Tool

You have in your hands one of the most powerful construction tools available today. A successful project is built on the foundation of an accurate and dependable estimate. This book will enable you to construct just such an estimate.

For the casual user the book is designed to be: quickly and easily understood so you can get right to your estimate.

Filled with valuable information so you can understand the necessary factors that go into the cost estimate.

For the regular user, the book is designed to be: a handy desk reference that can be quickly referred to for key costs.

A comprehensive, fully reliable source of current construction costs and productivity rates so you'll be prepared to estimate any project.

A source book for preliminary project cost, product selections, and alternate materials and methods.

To meet all of these requirements, we have organized the book into the following clearly defined sections.

New: Quick Start

See our new "Quick Start" instructions on the following page to get started right away.

Estimating with RSMeans Unit Price Cost Data

Please refer to these steps for guidance on completing an estimate using RSMeans unit price cost data.

How to Use the Book: The Details

This section contains an in-depth explanation of how the book is arranged . . . and how you can use it to determine a reliable construction cost estimate. It includes information about how we develop our cost figures and how to completely prepare your estimate.

Unit Price Section

All cost data has been divided into the 50 divisions according to the MasterFormat system of classification and numbering. For a listing of these divisions and an outline of their subdivisions, see the Unit Price Section Table of Contents.

Estimating tips are included at the beginning of each division.

Reference Section

This section includes information on Equipment Rental Costs, Crew Listings, Historical Cost Indexes, City Cost Indexes, Location Factors, Reference Tables, Change Orders, Square Foot Costs, and a listing of Abbreviations.

Equipment Rental Costs: This section contains the average costs to rent and operate hundreds of pieces of construction equipment.

Crew Listings: This section lists all of the crews referenced in the book. For the purposes of this book, a crew is composed of more than one trade classification and/or the addition of power equipment to any trade classification. Power equipment is included in the cost of the crew. Costs are shown both with bare labor rates and with the installing contractor's overhead and profit added. For each, the total crew cost per eight-hour day and the composite cost per labor-hour are listed.

Historical Cost Indexes: These indexes provide you with data to adjust construction costs over time.

City Cost Indexes: All costs in this book are U.S. national averages. Costs vary because of the regional economy. You can adjust costs by CSI Division to over 700 locations throughout the U.S. and Canada by using the data in this section.

Location Factors: You can adjust total project costs to over 900 locations throughout the U.S. and Canada by using the data in this section.

Reference Tables: At the beginning of selected major classifications in the Unit Price section are reference numbers shown in a shaded box. These numbers refer you to related information in the Reference Section. In this section, you'll find reference tables, explanations, estimating information that support how we develop the unit price data, technical data, and estimating procedures.

Change Orders: This section includes information on the factors that influence the pricing of change orders.

Square Foot Costs: This section contains costs for 59 different building types that allow you to make a rough estimate for the overall cost of a project or its major components.

Abbreviations: A listing of abbreviations used throughout this book, along with the terms they represent, is included in this section.

Index

A comprehensive listing of all terms and subjects in this book will help you quickly find what you need when you are not sure where it occurs in MasterFormat.

The Scope of This Book

This book is designed to be as comprehensive and as easy to use as possible. To that end we have made certain assumptions and limited its scope in two key ways:

1. We have established material prices based on a national average.
2. We have computed labor costs based on a 30-city national average of union wage rates.

For a more detailed explanation of how the cost data is developed, see "How To Use the Book: The Details."

Project Size/Type

The material prices in RSMeans data cost books are "contractor's prices." They are the prices that contractors can expect to pay at the lumberyards, suppliers/distributors warehouses, etc. Small orders of speciality items would be higher than the costs shown, while very large orders, such as truckload lots, would be less. The variation would depend on the size, timing, and negotiating power of the contractor. The labor costs are primarily for new construction or major renovation rather than repairs or minor alterations.

With reasonable exercise of judgment, the figures can be used for any building work.

Absolute Essentials for a Quick Start

If you feel you are ready to use this book and don't think you will need the detailed instructions that begin on the following page, this Absolute Essentials for a Quick Start page is for you. These steps will allow you to get started estimating in a matter of minutes.

1 Scope

Think through the project that you will be estimating, and identify the many individual work tasks that will need to be covered in your estimate.

2 Quantify

Determine the number of units that will be required for each work task that you identified.

3 Pricing

Locate individual Unit Price line items that match the work tasks you identified. The Unit Price Section Table of Contents that begins on page 1 and the Index in the back of the book will help you find these line items.

4 Multiply

Multiply the Total Incl O&P cost for a Unit Price line item in the book by your quantity for that item. The price you calculate will be an estimate for a completed item of work performed by a subcontractor. Keep adding line items in this manner to build your estimate.

5 Project Overhead

Include project overhead items in your estimate. These items are needed to make the job run and are typically, but not always, provided by the General Contractor. They can be found in Division 1. An alternate method of estimating project overhead costs is to apply a percentage of the total project cost.

Include rented tools not included in crews, waste, rubbish handling, and cleanup.

6 Estimate Summary

Include General Contractor's markup on subcontractors, General Contractor's office overhead and profit, and sales tax on materials and equipment.

Adjust your estimate to the project's location by using the City Cost Indexes or Location Factors found in the Reference Section.

Editors' Note: We urge you to spend time reading and understanding the supporting material in the front of this book. An accurate estimate requires experience, knowledge, and careful calculation. The more you know about how we at RSMeans developed the data, the more accurate your estimate will be. In addition, it is important to take into consideration the reference material in the back of the book such as Equipment Listings, Crew Listings, City Cost Indexes, Location Factors, and Reference Numbers.

Estimating with RSMeans Unit Price Cost Data

Following these steps will allow you to complete an accurate estimate using RSMeans Unit Price cost data.

Scope Out the Project

Identify the individual work tasks that will need to be covered in your estimate.

The Unit Price data in this book has been divided into 50 Divisions according to the CSI MasterFormat 2010—their titles are listed on the back cover of your book.

Think through the project and identify those CSI Divisions needed in your estimate.

The Unit Price Section Table of Contents on page 1 may also be helpful when scoping out your project.

Experienced estimators find it helpful to begin with Division 2 and continue through completion. Division 1 can be estimated after the full project scope is known.

Quantify

Determine the number of units required for each work task that you identified.

Experienced estimators include an allowance for waste in their quantities. (Waste is not included in RSMeans Unit Price line items unless so stated.)

Price the Quantities

Use the Unit Price Table of Contents, and the Index, to locate individual Unit Price line items for your estimate.

Reference Numbers indicated within a Unit Price section refer to additional information that you may find useful.

The crew indicates who is performing the work for that task. Crew codes are expanded in the Crew Listings in the Reference Section to include all trades and equipment that comprise the crew.

The Daily Output is the amount of work the crew is expected to do in one day.

The Labor-Hours value is the amount of time it will take for the crew to install one unit of work.

- The abbreviated Unit designation indicates the unit of measure upon which the crew, productivity, and prices are based.
- Bare Costs are shown for materials, labor, and equipment needed to complete the Unit Price line item. Bare costs do not include waste, project overhead, payroll insurance, payroll taxes, main office overhead, or profit.
- The Total Incl O&P cost is the billing rate or invoice amount of the installing contractor or subcontractor who performs the work for the Unit Price line item.

4 Multiply

- Multiply the total number of units needed for your project by the Total Incl O&P cost for each Unit Price line item.
- Be careful that your take off unit of measure matches the unit of measure in the Unit column.
- The price you calculate is an estimate for a completed item of work.
- Keep scoping individual tasks, determining the number of units required for those tasks, matching each task with individual Unit Price line items in the book, and multiply quantities by Total Incl O&P costs.
- An estimate completed in this manner is priced as if a subcontractor, or set of subcontractors, is performing the work. The estimate does not yet include Project Overhead or Estimate Summary components such as General Contractor markups on subcontracted work, General Contractor office overhead and profit, contingency, and location factor.

5 Project Overhead

- Include project overhead items from Division 1 – General Requirements.
- These items are needed to make the job run. They are typically, but not always, provided by the General Contractor. Items include, but are not limited to, field personnel, insurance, performance bond, permits, testing, temporary utilities, field office and storage facilities, temporary scaffolding and platforms, equipment mobilization and demobilization, temporary roads and sidewalks, winter protection, temporary barricades and fencing, temporary security, temporary signs, field engineering and layout, final cleaning and commissioning.
- Each item should be quantified, and matched to individual Unit Price line items in Division 1, and then priced and added to your estimate.
- An alternate method of estimating project overhead costs is to apply a percentage of the total project cost, usually 5% to 15% with an average of 10% (see General Conditions, page ix).
- Include other project related expenses in your estimate such as:
 - Rented equipment not itemized in the Crew Listings
 - Rubbish handling throughout the project (see 02 41 19.19)

6 Estimate Summary

- Include sales tax as required by laws of your state or country.
- Include the General Contractor's markup on self-performed work, usually 5% to 15% with an average of 10%.
- Include the General Contractor's markup on subcontracted work, usually 5% to 15% with an average of 10%.
- Include General Contractor's main office overhead and profit.
- RSMeans gives general guidelines on the General Contractor's main office overhead (see section 01 31 13.50 and Reference Number R013113-50).
- RSMeans gives no guidance on the General Contractor's profit.
- Markups will depend on the size of the General Contractor's operations, his projected annual revenue, the level of risk he is taking on, and on the level of competition in the local area and for this project in particular.
- Include a contingency, usually 3% to 5%, if appropriate.

- Adjust your estimate to the project's location by using the City Cost Indexes or the Location Factors in the Reference Section.
- Look at the rules on the pages for How to Use the City Cost Indexes to see how to apply the Indexes for your location.
- When the proper Index or Factor has been identified for the project's location, convert it to a multiplier by dividing it by 100, and then multiply that multiplier by your estimated total cost. The original estimated total cost will now be adjusted up or down from the national average to a total that is appropriate for your location.

Editors' Notes:

- 1) *We urge you to spend time reading and understanding the supporting material in the front of this book. An accurate estimate requires experience, knowledge, and careful calculation. The more you know about how we at RSMeans developed the data, the more accurate your estimate will be. In addition, it is important to take into consideration the reference material*

in the back of the book such as Equipment Listings, Crew Listings, City Cost Indexes, Location Factors, and Reference Numbers.

- 2) *Contractors who are bidding or are involved in JOC, DOC, SABER, or IDIQ type contracts are cautioned that workers' compensation insurance, federal and state payroll taxes, waste, project supervision, project overhead, main office overhead, and profit are not included in bare costs. The coefficient or multiplier must cover these costs.*

How to Use the Book: The Details

What's Behind the Numbers? The Development of Cost Data

The staff at RSMeans continually monitors developments in the construction industry in order to ensure reliable, thorough, and up-to-date cost information. While overall construction costs may vary relative to general economic conditions, price fluctuations within the industry are dependent upon many factors. Individual price variations may, in fact, be opposite to overall economic trends. Therefore, costs are constantly tracked and complete updates are published yearly. Also, new items are frequently added in response to changes in materials and methods.

Costs—\$ (U.S.)

All costs represent U.S. national averages and are given in U.S. dollars. The RSMeans City Cost Indexes can be used to adjust costs to a particular location. The City Cost Indexes for Canada can be used to adjust U.S. national averages to local costs in Canadian dollars. No exchange rate conversion is necessary.

G The processes or products identified by the green symbol in our publications have been determined to be environmentally responsible and/or resource-efficient solely by the RSMeans engineering staff. The inclusion of the green symbol does not represent compliance with any specific industry association or standard.

Material Costs

The RSMeans staff contacts manufacturers, dealers, distributors, and contractors all across the U.S. and Canada to determine national average material costs. If you have access to current material costs for your specific location, you may wish to make adjustments to reflect differences from the national average. Included within material costs are fasteners for a normal installation. RSMeans engineers use manufacturers' recommendations, written

specifications, and/or standard construction practice for size and spacing of fasteners. Adjustments to material costs may be required for your specific application or location. Material costs do not include sales tax.

Labor Costs

Labor costs are based on the average of wage rates from 30 major U.S. cities. Rates are determined from labor union agreements or prevailing wages for construction trades for the current year. Rates, along with overhead and profit markups, are listed on the inside back cover of this book.

- If wage rates in your area vary from those used in this book, or if rate increases are expected within a given year, labor costs should be adjusted accordingly.

Labor costs reflect productivity based on actual working conditions. In addition to actual installation, these figures include time spent during a normal weekday on tasks such as, material receiving and handling, mobilization at site, site movement, breaks, and cleanup. Productivity data is developed over an extended period so as not to be influenced by abnormal variations and reflects a typical average.

Equipment Costs

Equipment costs include not only rental, but also operating costs for equipment under normal use. The operating costs include parts and labor for routine servicing such as repair and replacement of pumps, filters, and worn lines. Normal operating expendables, such as fuel, lubricants, tires, and electricity (where applicable), are also included. Extraordinary operating expendables with highly variable wear patterns, such as diamond bits and blades, are excluded. These costs are included under materials. Equipment rental rates are obtained from industry sources throughout North America—contractors, suppliers, dealers, manufacturers, and distributors.

Rental rates can also be treated as reimbursement costs for contractor-owned equipment. Owned equipment costs include depreciation, loan payments, interest, taxes, insurance, storage and major repairs.

Equipment costs do not include operators' wages; nor do they include the cost to move equipment to a job site (mobilization) or from a job site (demobilization).

Equipment Cost/Day—The cost of power equipment required for each crew is included in the Crew Listings in the Reference Section (small tools that are considered as essential everyday tools are not listed out separately). The Crew Listings itemize specialized tools and heavy equipment along with labor trades. The daily cost of itemized equipment included in a crew is based on dividing the weekly bare rental rate by 5 (number of working days per week) and then adding the hourly operating cost times 8 (the number of hours per day). This Equipment Cost/Day is shown in the last column of the Equipment Rental Cost pages in the Reference Section.

Mobilization/Demobilization—The cost to move construction equipment from an equipment yard or rental company to the job site and back again is not included in equipment costs. Mobilization (to the site) and demobilization (from the site) costs can be found in the Unit Price Section. If a piece of equipment is already at the job site, it is not appropriate to utilize mob./demob. costs again in an estimate.

Overhead and Profit

Total Cost including O&P for the *Installing Contractor* is shown in the last column on the Unit Price and/or the Assemblies pages of this book. This figure is the sum of the bare material cost plus 10% for profit, the bare labor cost plus total overhead and profit, and the bare equipment cost plus 10% for profit. Details for the calculation of Overhead and Profit on labor are shown on the inside back cover and in the Reference Section of this book. (See the "How to Use the Unit Price Pages" for an example of this calculation.)

General Conditions

Cost data in this book is presented in two ways: Bare Costs and Total Cost including O&P (Overhead and Profit). General Conditions, or General Requirements, of the contract should also be added to the Total Cost including O&P when applicable. Costs for General Conditions are listed in Division 1 of the Unit Price Section and the Reference

Section of this book. General Conditions for the *Installing Contractor* may range from 0% to 10% of the Total Cost including O&P. For the *General or Prime Contractor*, costs for General Conditions may range from 5% to 15% of the Total Cost including O&P, with a figure of 10% as the most typical allowance. If applicable, the Assemblies and Models sections of this book use costs that include the installing contractor's overhead and profit (O&P).

Factors Affecting Costs

Costs can vary depending upon a number of variables. Here's how we have handled the main factors affecting costs.

Quality—The prices for materials and the workmanship upon which productivity is based represent sound construction work. They are also in line with U.S. government specifications.

Overtime—We have made no allowance for overtime. If you anticipate premium time or work beyond normal working hours, be sure to make an appropriate adjustment to your labor costs.

Productivity—The productivity, daily output, and labor-hour figures for each line item are based on working an eight-hour day in daylight hours in moderate temperatures. For work that extends beyond normal work hours or is performed under adverse conditions, productivity may decrease. (See the section in "How To Use the Unit Price Pages" for more on productivity.)

Size of Project—The size, scope of work, and type of construction project will have a significant impact on cost. Economies of scale can reduce costs for large projects. Unit costs can often run higher for small projects.

Location—Material prices in this book are for metropolitan areas. However, in dense urban areas, traffic and site storage limitations may increase costs. Beyond a 20-mile radius of large cities, extra trucking or transportation charges may also increase the material costs slightly. On the other hand, lower wage rates may be in effect. Be sure to consider both of these factors when preparing an estimate, particularly if the job site is located in a central city or remote rural location. In addition, highly specialized subcontract items may require travel and per-diem expenses for mechanics.

Other Factors—

- season of year
- contractor management
- weather conditions
- local union restrictions
- building code requirements
- availability of:
 - adequate energy
 - skilled labor
 - building materials
- owner's special requirements/restrictions
- safety requirements
- environmental considerations

Unpredictable Factors—General business conditions influence "in-place" costs of all items. Substitute materials and construction methods may have to be employed. These may affect the installed cost and/or life cycle costs. Such factors may be difficult to evaluate and cannot necessarily be predicted on the basis of the job's location in a particular section of the country. Thus, where these factors apply, you may find significant but unavoidable cost variations for which you will have to apply a measure of judgment to your estimate.

Rounding of Costs

In general, all unit prices in excess of \$5.00 have been rounded to make them easier to use and still maintain adequate precision of the results. The rounding rules we have chosen are in the following table.

Prices from . . .	Rounded to the nearest . . .
\$0.01 to \$5.00	\$0.01
\$5.01 to \$20.00	\$0.05
\$20.01 to \$100.00	\$0.50
\$100.01 to \$300.00	\$1.00
\$300.01 to \$1,000.00	\$5.00
\$1,000.01 to \$10,000.00	\$25.00
\$10,000.01 to \$50,000.00	\$100.00
\$50,000.01 and above	\$500.00

How Subcontracted Items Affect Costs

A considerable portion of all large construction jobs is usually subcontracted. In fact, the percentage done by subcontractors is constantly increasing and may run over 90%. Since the workers employed by these companies do nothing else but install their particular product, they soon become expert in that line. The result is, installation by these firms is accomplished so efficiently that the total in-place cost, even adding the general contractor's overhead and profit, is no more, and often less, than if the principal contractor had handled the installation himself/herself. Companies that deal with construction specialties are anxious to have their product perform well and, consequently, the installation will be the best possible.

Contingencies

The allowance for contingencies generally provides for unforeseen construction difficulties. On alterations or repair jobs, 20% is not too much. If drawings are final and only field contingencies are being considered, 2% or 3% is probably sufficient, and often nothing need be added. Contractually, changes in plans will be covered by extras. The contractor should consider inflationary price trends and possible material shortages during the course of the job. These escalation factors are dependent upon both economic conditions and the anticipated time between the estimate and actual construction. If drawings are not complete or approved, or a budget cost is wanted, it is wise to add 5% to 10%. Contingencies, then, are a matter of judgment. Additional allowances for contingencies are shown in Division 1.

Important Estimating Considerations

The "productivity," or daily output, of each craftsman includes mobilization and cleanup time, break time and plan layout time, as well as an allowance to carry stock from the storage trailer or location on the job site up to 200' into the building and to the first or second floor. If material has to be transported over greater distances or to higher floors, an additional allowance should be considered by the estimator. An allowance has also been included in the piping and fittings installation time for leak checking and minor tightening. Equipment installation time includes the following applicable items: positioning, leveling and securing the unit in place, connecting all associated piping, ducts, vents, etc., which shall have been estimated separately, connecting to an adjacent power source, filling/bleeding, startup, adjusting the controls up and down to ensure proper response, setting the integral controls/valves/regulators/thermostats for proper operation (does not include external building type control systems, DDC systems, etc.), explaining/training owner's operator, and

warranty. A reasonable breakdown of the labor costs is as follows:

1. Movement into building, installation/setting of equipment	35%
2. Connection to piping/duct/power, etc.	25%
3. Filling/flushing/cleaning/touchup, etc.	15%
4. Startup/running adjustments	5%
5. Training owner's representative	5%
6. Warranty/call back/service	15%

Note that cranes or other lifting equipment are not included on any lines in the Mechanical divisions. For example, if a crane is required to lift a heavy piece of pipe into place high above a gym floor, or to put a rooftop unit on the roof of a four-story building, etc., it must be added. Due to the potential for extreme variation—from nothing additional required to a major crane or helicopter—we feel that including a nominal amount for "lifting contingency" would be useless and detract from the accuracy of the estimate. When using equipment rental from RSMMeans, remember to include the cost of the operator(s).

Estimating Labor-Hours

The labor-hours expressed in this publication are based on Average Installation time, using an efficiency level of approximately 60%–65% (see item 7), which has been found reasonable and acceptable by many contractors. The book uses this national efficiency average to establish a consistent benchmark. For bid situations, adjustments to this efficiency level should be the responsibility of the contractor bidding the project. The unit labor-hour is divided in the following manner. A typical day for a journeyman might be:

1. Study Plans	3%	14.4 min.
2. Material Procurement	3%	14.4 min.
3. Receiving and Storing	3%	14.4 min.
4. Mobilization	5%	24.0 min.
5. Site Movement	5%	24.0 min.
6. Layout and Marking	8%	38.4 min.
7. Actual Installation	64%	307.2 min.
8. Cleanup	3%	14.4 min.
9. Breaks,		
Nonproductive	6%	28.8 min.
	100%	480.0 min.

If any of the percentages expressed in this breakdown do not apply to the particular work or project situation, then that percentage or a portion of it may be deducted from or added to labor-hours.

Final Checklist

Estimating can be a straightforward process provided you remember the basics. Here's a checklist of some of the steps you should remember to complete before finalizing your estimate. Did you remember to . . .

- factor in the City Cost Index for your locale?
- take into consideration which items have been marked up and by how much?
- mark up the entire estimate sufficiently for your purposes?
- read the background information on techniques and technical matters that could impact your project time span and cost?
- include all components of your project in the final estimate?
- double check your figures for accuracy?
- call RSMMeans if you have any questions about your estimate or the data you've found in our publications? Remember, RSMMeans stands behind its publications. If you have any questions about your estimate . . . about the costs you've used from our books . . . or even about the technical aspects of the job that may affect your estimate, feel free to call the RSMMeans editors at 1-800-334-3509.

Booming of Costs

Costs for building a new highway bridge in the United States are rising sharply, according to a report by the American Road & Builders Builders Association. The report, "The State of the Bridge Industry," says that the cost of building a new bridge in the United States is now about \$1.5 million per mile, up from about \$1 million per mile just a few years ago. The report also says that the cost of building a new bridge in the United States is now about \$1.5 million per mile, up from about \$1 million per mile just a few years ago.

How Subcontractors Will Affect Estimating Costs

Subcontractors will have a significant impact on the cost of estimating a project, according to a report by the American Road & Builders Builders Association. The report, "The State of the Bridge Industry," says that the cost of building a new bridge in the United States is now about \$1.5 million per mile, up from about \$1 million per mile just a few years ago. The report also says that the cost of building a new bridge in the United States is now about \$1.5 million per mile, up from about \$1 million per mile just a few years ago.

Estimating Labor Hours

The labor hours required for a project can be estimated by using a variety of methods, according to a report by the American Road & Builders Builders Association. The report, "The State of the Bridge Industry," says that the cost of building a new bridge in the United States is now about \$1.5 million per mile, up from about \$1 million per mile just a few years ago. The report also says that the cost of building a new bridge in the United States is now about \$1.5 million per mile, up from about \$1 million per mile just a few years ago.

Final Checklist

Before starting a project, it is important to complete a final checklist, according to a report by the American Road & Builders Builders Association. The report, "The State of the Bridge Industry," says that the cost of building a new bridge in the United States is now about \$1.5 million per mile, up from about \$1 million per mile just a few years ago. The report also says that the cost of building a new bridge in the United States is now about \$1.5 million per mile, up from about \$1 million per mile just a few years ago.

1

Table of Contents (cont.)

Sect. No.	Page	Sect. No.	Page	Sect. No.	Page
09 29	Gypsum Board 310	11 47	Ice Machines 391	14 92	Pneumatic Tube Systems 452
09 30	Tiling 314	11 48	Cleaning and Disposal Equipment 391		Fire Suppression
09 34	Waterproofing-Membrane Tiling 316	11 52	Audio-Visual Equipment 392	21 05	Common Work Results for Fire
09 51	Acoustical Ceilings 317	11 53	Laboratory Equipment 393		Suppression 456
09 53	Acoustical Ceiling Suspension	11 57	Vocational Shop Equipment 394	21 11	Facility Fire-Suppression
	Assemblies 318	11 61	Theater and Stage Equipment 395		Water-Service Piping 456
09 54	Specialty Ceilings 319	11 62	Musical Equipment 395	21 12	Fire-Suppression Standpipes 457
09 62	Specialty Flooring 319	11 66	Athletic Equipment 396	21 13	Fire-Suppression Sprinkler Systems 457
09 63	Masonry Flooring 320	11 67	Recreational Equipment 397	21 21	Carbon-Dioxide Fire-Extinguishing
09 64	Wood Flooring 320	11 68	Play Field Equipment and		Systems 458
09 65	Resilient Flooring 322		Structures 398	21 22	Clean-Agent Fire-Extinguishing
09 66	Terrazzo Flooring 324	11 71	Medical Sterilizing Equipment 399		Systems 459
09 67	Fluid-Applied Flooring 326	11 72	Examination and Treatment	21 31	Centrifugal Fire Pumps 459
09 68	Carpeting 327		Equipment 400		Plumbing
09 69	Access Flooring 328	11 73	Patient Care Equipment 400	22 01	Operation and Maintenance
09 72	Wall Coverings 329	11 74	Dental Equipment 401		of Plumbing 462
09 77	Special Wall Surfacing 330	11 76	Operating Room Equipment 401	22 05	Common Work Results
09 81	Acoustic Insulation 331	11 77	Radiology Equipment 402		for Plumbing 463
09 84	Acoustic Room Components 331	11 78	Mortuary Equipment 402	22 07	Plumbing Insulation 469
09 91	Painting 332	11 82	Solid Waste Handling Equipment 402	22 11	Facility Water Distribution 470
09 93	Staining and Transparent Finishing 344	11 91	Religious Equipment 403	22 13	Facility Sanitary Sewerage 478
09 96	High-Performance Coatings 345		Furnishings	22 14	Facility Storm Drainage 480
09 97	Special Coatings 346	12 21	Window Blinds 406	22 31	Domestic Water Softeners 482
	Specialties	12 22	Curtains and Drapes 406	22 33	Electric Domestic Water Heaters 482
10 05	Common Work Results	12 23	Interior Shutters 407	22 34	Fuel-Fired Domestic Water Heaters 483
	for Specialties 348	12 24	Window Shades 408	22 35	Domestic Water Heat Exchangers 484
10 11	Visual Display Units 348	12 32	Manufactured Wood Casework 408	22 41	Residential Plumbing Fixtures 484
10 13	Directories 351	12 35	Specialty Casework 411	22 42	Commercial Plumbing Fixtures 487
10 14	Signage 352	12 36	Countertops 412	22 45	Emergency Plumbing Fixtures 491
10 17	Telephone Specialties 353	12 46	Furnishing Accessories 415	22 47	Drinking Fountains and Water
10 21	Compartments and Cubicles 353	12 48	Rugs and Mats 415		Coolers 492
10 22	Partitions 358	12 51	Office Furniture 416	22 51	Swimming Pool Plumbing Systems 493
10 26	Wall and Door Protection 361	12 52	Seating 416	22 52	Fountain Plumbing Systems 493
10 28	Toilet, Bath, and Laundry	12 54	Hospitality Furniture 417	22 66	Chemical-Waste Systems for Lab
	Accessories 362	12 55	Detention Furniture 418		and Healthcare Facilities 494
10 31	Manufactured Fireplaces 364	12 56	Institutional Furniture 418		Heating Ventilation Air Conditioning
10 32	Fireplace Specialties 365	12 61	Fixed Audience Seating 419	23 05	Common Work Results for HVAC 496
10 35	Stoves 365	12 63	Stadium and Arena Seating 420	23 07	HVAC Insulation 498
10 44	Fire Protection Specialties 365	12 67	Pews and Benches 420	23 09	Instrumentation and Control
10 51	Lockers 366	12 92	Interior Planters and Artificial		for HVAC 499
10 55	Postal Specialties 368		Plants 420	23 13	Facility Fuel-Storage Tanks 500
10 56	Storage Assemblies 368	12 93	Site Furnishings 421	23 21	Hydronic Piping and Pumps 502
10 57	Wardrobe and Closet Specialties 369		Special Construction	23 22	Steam and Condensate Piping
10 71	Exterior Protection 370	13 05	Common Work Results for Special		and Pumps 505
10 73	Protective Covers 370		Construction 424	23 31	HVAC Ducts and Casings 505
10 74	Manufactured Exterior Specialties 371	13 11	Swimming Pools 427	23 33	Air Duct Accessories 506
10 75	Flagpoles 372	13 17	Tubs and Pools 428	23 34	HVAC Fans 508
10 81	Pest Control Devices 373	13 18	Ice Rinks 429	23 37	Air Outlets and Inlets 512
10 88	Scales 373	13 21	Controlled Environment Rooms 429	23 38	Ventilation Hoods 515
	Equipment	13 24	Special Activity Rooms 431	23 41	Particulate Air Filtration 515
11 05	Common Work Results	13 28	Athletic and Recreational Special	23 42	Gas-Phase Air Filtration 515
	for Equipment 376		Construction 432	23 43	Electronic Air Cleaners 516
11 11	Vehicle Service Equipment 378	13 31	Fabric Structures 432	23 51	Breechings, Chimneys, and Stacks 516
11 12	Parking Control Equipment 378	13 34	Fabricated Engineered Structures 434	23 52	Heating Boilers 517
11 13	Loading Dock Equipment 379	13 36	Towers 441	23 54	Furnaces 519
11 14	Pedestrian Control Equipment 380	13 42	Building Modules 441	23 55	Fuel-Fired Heaters 520
11 16	Vault Equipment 380	13 48	Sound, Vibration, and Seismic	23 56	Solar Energy Heating Equipment 520
11 17	Teller and Service Equipment 381		Control 441	23 57	Heat Exchangers for HVAC 521
11 19	Detention Equipment 381	13 49	Radiation Protection 442	23 62	Packaged Compressor and
11 21	Mercantile and Service Equipment 381	13 53	Meteorological Instrumentation 443		Condenser Units 522
11 23	Commercial Laundry and		Conveying Equipment	23 63	Refrigerant Condensers 522
	Dry Cleaning Equipment 382	14 11	Manual Dumbwaiters 446	23 64	Packaged Water Chillers 523
11 24	Maintenance Equipment 383	14 12	Electric Dumbwaiters 446	23 65	Cooling Towers 524
11 26	Unit Kitchens 383	14 21	Electric Traction Elevators 446	23 73	Indoor Central Station Air-Handling
11 27	Photographic Processing	14 24	Hydraulic Elevators 447		Units 525
	Equipment 384	14 27	Custom Elevator Cabs and Doors 448	23 74	Packaged Outdoor HVAC Equip. 525
11 31	Residential Appliances 384	14 28	Elevator Equipment and Controls 449	23 81	Decentralized Unitary HVAC
11 33	Retractable Stairs 386	14 31	Escalators 450		Equipment 526
11 41	Foodservice Storage Equipment 387	14 32	Moving Walks 451	23 82	Convection Heating and Cooling
11 42	Food Preparation Equipment 389	14 42	Wheelchair Lifts 451		Units 527
11 43	Food Delivery Carts and Conveyors 389	14 45	Vehicle Lifts 451	23 83	Radiant Heating Units 530
11 44	Food Cooking Equipment 389	14 51	Correspondence and Parcel Lifts 452	23 84	Humidity Control Equipment 531
11 46	Food Dispensing Equipment 390	14 91	Facility Chutes 452		

Table of Contents (cont.)

Sect. No.	Page	Sect. No.	Page	Sect. No.	Page
	Electrical				Utilities
26 05	Common Work Results for	31 13	Selective Tree and Shrub Removal	33 01	Operation and Maintenance
	Electrical	31 14	and Trimming		of Utilities
26 09	Instrumentation and Control	31 22	Earth Stripping and Stockpiling		Common Work Results
	for Electrical Systems	31 23	Grading	33 05	for Utilities
26 12	Medium-Voltage Transformers	31 25	Excavation and Fill	33 11	Water Utility Distribution Piping
26 22	Low-Voltage Transformers		Erosion and Sedimentation	33 12	Water Utility Distribution
26 24	Switchboards and Panelboards	31 31	Controls		Equipment
26 27	Low-Voltage Distribution Equip	31 32	Soil Treatment	33 16	Water Utility Storage Tanks
26 28	Low-Voltage Circuit Protective	31 32	Soil Stabilization		Water Supply Wells
	Devices	31 33	Rock Stabilization	33 21	Sanitary Utility Sewerage Piping
26 29	Low-Voltage Controllers	31 36	Gabions	33 31	Utility Septic Tanks
26 32	Packaged Generator Assemblies	31 37	Riprap	33 36	Storm Utility Drainage Piping
26 35	Power Filters and Conditioners	31 41	Shoring	33 41	Culverts
26 42	Cathodic Protection	31 43	Concrete Raising	33 42	Storm Utility Water Drains
26 51	Interior Lighting	31 45	Vibroflotation and Densification	33 44	Subdrainage
26 52	Emergency Lighting	31 46	Needle Beams	33 46	Storm Drainage Structures
26 53	Exit Signs	31 48	Underpinning	33 49	Natural-Gas Distribution
26 54	Classified Location Lighting	31 52	Cofferdams	33 51	Liquid Fuel Distribution
26 55	Special Purpose Lighting	31 56	Slurry Walls	33 52	Electrical Utility Transmission
26 56	Exterior Lighting	31 62	Driven Piles	33 71	and Distribution
26 61	Lighting Systems and Accessories	31 63	Bored Piles		Communications Structures
26 71	Electrical Machines			33 81	Transportation
	Communications	32 01	Exterior Improvements		Operation and Maintenance
27 13	Communications Backbone		Operation and Maintenance	34 01	of Transportation
	Cabling	32 06	of Exterior Improvements		Rail Tracks
27 41	Audio-Video Systems		Schedules for Exterior	34 11	Roadway Signaling and Control
27 51	Distributed Audio-Video		Improvements	34 41	Equipment
	Communications Systems	32 11	Base Courses	34 71	Roadway Construction
27 52	Healthcare Communications	32 12	Flexible Paving	34 72	Railway Construction
	and Monitoring Systems	32 13	Rigid Paving		Waterway & Marine
27 53	Distributed Systems	32 14	Unit Paving	35 20	Waterway and Marine Construction
	Electronic Safety & Security	32 16	Curbs, Gutters, Sidewalks,		and Equipment
28 13	Access Control		and Driveways	35 51	Floating Construction
28 16	Intrusion Detection	32 17	Paving Specialties		Material Processing & Handling Equipment
28 23	Video Surveillance	32 18	Athletic and Recreational Surfacing	41 21	Conveyors
28 31	Fire Detection and Alarm	32 31	Fences and Gates	41 22	Cranes and Hoists
28 33	Gas Detection and Alarm	32 32	Retaining Walls		Pollution Control Equipment
28 39	Mass Notification Systems	32 34	Fabricated Bridges	44 11	Particulate Control Equipment
	Earthwork	32 35	Screening Devices		Water and Wastewater Equipment
31 05	Common Work Results	32 84	Planting Irrigation	46 07	Packaged Water and Wastewater
	for Earthwork	32 91	Planting Preparation		Treatment Equipment
31 06	Schedules for Earthwork	32 92	Turf and Grasses		
31 11	Clearing and Grubbing	32 93	Plants		
		32 94	Planting Accessories		
		32 96	Transplanting		

How RSMeans Data Works

All RSMeans unit price data is organized in the same way.

It is important to understand the structure, so that you can find information easily and use it correctly.

RSMeans **Line Numbers** consist of 12 characters, which identify a unique location in the database for each task. The first 6 or 8 digits conform to the Construction Specifications Institute MasterFormat 2010. The remainder of the digits are a further breakdown by RSMeans in order to arrange items in understandable groups of similar tasks. Line numbers are consistent across all RSMeans publications, so a line number in any RSMeans product will always refer to the same unit of work.

RSMeans engineers have created **reference** information to assist you in your estimate. If there is information that applies to a section, it will be indicated at the start of the section. In this case, R033105-10 provides information on the proportionate quantities of formwork, reinforcing, and concrete used in cast-in-place concrete items such as footings, slabs, beams, and columns. The reference section is located in the back of the book on the pages with a gray edge.

RSMeans **Descriptions** are shown in a hierarchical structure to make them readable. In order to read a complete description, read up through the indents to the top of the section. Include everything that is above and to the left that is not contradicted by information below. For instance, the complete description for line 03 30 53.40 3550 is "Concrete in place, including forms (4 uses), reinforcing steel, concrete, placement, and finishing unless otherwise indicated; Equipment pad (3000 psi), 4' x 4' x 6" thick."

When using **RSMeans data**, it is important to read through an entire section to ensure that you use the data that most closely matches your work. Note that sometimes there is additional information shown in the section that may improve your price. There are frequently lines that further describe, add to, or adjust data for specific situations.

03 30 Cast-In-Place Concrete

03 30 53 – Miscellaneous Cast-In-Place Concrete

03 30 53.40 Concrete In Place

0010	CONCRETE IN PLACE	R033105-10
0020	Including forms (4 uses), reinforcing steel, concrete, placement,	R033105-20
0050	and finishing unless otherwise indicated	R033105-50
0300	Beams (3500 psi), 5 kip per L.F., 10' span	R033105-65
0350	25' span	R033105-70
0500	Chimney foundations (5000 psi), industrial, minimum	R033105-85
0510	Maximum	
0700	Columns, square (4000 psi), 12" x 12", minimum reinforcing	
3500	Add per floor for 3 to 6 stories high	
3520	For 7 to 20 stories high	
3540	Equipment pad (3000 psi), 3' x 3' x 6" thick	
3550	4' x 4' x 6" thick	
3560	5' x 5' x 8" thick	
3570	6' x 6' x 8" thick	

The data published in RSMeans print books represents a "national average" cost. This data should be modified to the project location using the **City Cost Indexes** or **Location Factors** tables found in the reference section (see pages 713-716). Use the location factors to adjust estimate totals if the project covers multiple trades. Use the city cost indexes (CCI) for single trade projects or projects where a more detailed analysis is required. All figures in the two tables are derived from the same research. The last row of data in the CCI, the weighted average, is the same as the numbers reported for each location in the location factor table.

Crews include labor or labor and equipment necessary to accomplish each task. In this case, Crew C-14H is used. RSM means selects a crew to represent the workers and equipment that are typically used for that task. In this case, Crew C-14H consists of one carpenter foreman (outside), two carpenters, one roofer, one laborer, one cement finisher, and one gas engine vibrator. Details of all crews can be found in the reference section.

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew C-14H						
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$43.48	\$66.89
2 Carpenters	44.10	705.60	67.85	1085.60		
1 Roofer (incl.)	49.10	352.80	78.40	427.20		
1 Laborer	35.10	280.80	54.00	432.00		
1 Cement Finisher	42.35	338.80	62.30	498.40		
1 Gas Engine Vibrator		27.40		30.14	.57	.63
48 L.H. Daily Totals		\$2114.20		\$3240.94	\$44.05	\$67.92

The **Daily Output** is the amount of work that the crew can do in a normal 8-hour workday, including mobilization, layout, movement of materials, and cleanup. In this case, crew C-14H can install thirty 4' x 4' x 6" thick concrete pads in a day. Daily output is variable, based on many factors, including the size of the job, location, and environmental conditions. RSM means data represents work done in daylight (or adequate lighting) and temperate conditions.

Bare Costs are the costs of materials, labor, and equipment that the installing contractor pays. They represent the cost, in U.S. dollars, for one unit of work. They do not include any markups for profit or labor burden.

Crew	Daily Output		Unit	2012 Bare Costs				Total Incl O&P
	Hours	Unit		Material	Labor	Equipment	Total	
C-14A	15.62	12.804	C.Y.	305	565	47.50	917.50	1,275
"	18.55	10.782		320	480	40	840	1,125
C-14C	32.22	3.476		144	147	.83	291.83	385
"	23.71	4.724		168	200	1.13	369.13	495
C-14A	11.96	16.722		350	740	62	1,152	1,600
	31800	.002			.07	.02	.09	.12
	21200	.003			.10	.03	.13	.20
C-14H	45	1.067	Ea.	44	46.50	.81	91.11	121
	30	1.600		66	69.50	.91	136.41	181
	18	2.667		118	116	1.52	235.52	310
	14	3.429		159	149	1.95	309.95	405

The **Total Incl O&P** column is the total cost, including overhead and profit, that the installing contractor will charge the customer. This represents the cost of materials plus 10% profit, the cost of labor plus labor burden and 10% profit. It does not include the general contractor's overhead and profit. Note: See the inside back cover for details of how RSM means calculates labor burden.

The **Total** column represents the total bare cost for the installing contractor, in U.S. dollars. In this case, the sum of \$66 for material + \$69.50 for labor + \$.91 for equipment is \$136.41.

The figure in the **Labor Hours** column is the amount of labor required to perform one unit of work—in this case the amount of labor required to construct one 4' x 4' equipment pad. This figure is calculated by dividing the number of hours of labor in the crew by the daily output (48 labor hours divided by 30 pads = 1.6 hours of labor per pad). Multiply 1.600 times 60 to see the value in minutes: 60 x 1.6 = 96 minutes. Note: the labor hour figure is not dependent on the crew size. A change in crew size will result in a corresponding change in daily output, but the labor hours per unit of work will not change.

All RSM means unit cost data includes the typical **Unit of Measure** used for estimating that item. For concrete-in-place the typical unit is cubic yards (C.Y.) or each (Ea.). For installing broadloom carpet it is square yard, and for gypsum board it is square foot. The estimator needs to take special care that the unit in the data matches the unit in the take-off. Unit conversions may be found in the Reference Section.

How RSMeans Data Works (continued)

Sample Estimate

This sample demonstrates the elements of an estimate, including a tally of the RSMeans data lines, and a summary of the markups on a contractor's work to arrive at a total cost to the owner. The RSMeans Location Factor is added at the bottom of the estimate to adjust the cost of the work to a specific location.

Work Performed: The body of the estimate shows the RSMeans data selected, including line number, a brief description of each item, its take-off unit and quantity, and the bare costs of materials, labor, and equipment. This estimate also includes a column titled "SubContract." This data is taken from the RSMeans column "Total Incl O&P," and represents the total that a subcontractor would charge a general contractor for the work, including the sub's markup for overhead and profit.

General Requirements: This item covers project-wide needs provided by the general contractor. These items vary by project, but may include temporary facilities and utilities, security, testing, project cleanup, etc. For small projects a percentage can be used, typically between 5% and 15% of project cost. For large projects the costs may be itemized and priced individually.

Bonds: Bond costs should be added to the estimate. The figures here represent a typical performance bond, ensuring the owner that if the general contractor does not complete the obligations in the construction contract the bonding company will pay the cost for completion of the work.

Location Adjustment: RSMeans published data is based on national average costs. If necessary, adjust the total cost of the project using a location factor from the "Location Factor" table or the "City Cost Index" table. Use location factors if the work is general, covering multiple trades. If the work is by a single trade (e.g., masonry) use the more specific data found in the "City Cost Indexes."

Project Name: Pre-Engineered Steel Building		Architect: As Shown		
Location: Anywhere, USA				
Line Number	Description	Qty	Unit	Material
03 30 53.40 3950	Strip footing, 12" x 36"	33.33	C.Y.	\$4,699.53
03 30 53.40 3940	Strip footing, 12" x 24"	14.8	C.Y.	\$2,175.60
03 31 05.35 0300	Concrete ready mix, 4000 psi, for slob	185.2	C.Y.	\$19,631.20
03 31 05.70 4300	Placing concrete, slob on grade	185.2	C.Y.	\$0.00
03 11 13.65 3000	Concrete forms	500	L.F.	\$190.00
03 22 05.50 0200	WWF	150	C.S.F.	\$3,975.00
03 39 23.13 0300	Curing	150	C.S.F.	\$787.50
03 35 29.30 0250	Concrete finishing	15000	S.F.	\$0.00
03 35 29.35 0160	Control joints	650	L.F.	\$84.50
Division 03	Subtotal			\$31,543.33
08 33 23.10 0100	10' x 10' OH Door	8	Eo.	\$14,000.00
08 33 23.10 3300	Add for enamel finish	800	S.F.	\$1,216.00
Division 8	Subtotal			\$15,216.00
13 34 19.50 1000	Pre-Engineered Steel Building	15,000	SF Flr.	
13 34 19.50 6050	Framing for doors, 3' x 7'	4	Opng.	\$0.00
13 34 19.50 6100	Framing for doors, 10' x 10'	8	Opng.	\$0.00
13 34 19.50 6200	Framing for windows, 3' x 4'	6	Opng.	\$0.00
13 34 19.50 5750	PES8 doors	4	Opng.	\$1,740.00
13 34 19.50 7750	PES8 windows	6	Opng.	\$2,100.00
13 34 19.50 6550	Gutters	380	L.F.	\$2,679.00
13 34 19.50 8650	Roof vent	15	Eo.	\$382.50
13 34 19.50 6900	Insulation	25,000	S.F.	\$12,750.00
Division 13	Subtotal			\$19,651.50
Estimate Subtotal				\$66,410.83
Gen. Requirements				4,648.76
Sales Tax				3,320.54
Subtotal				74,380.13
GC O & P				7,438.01
Subtotal				81,818.14
Contingency @5%				4,090.91
Subtotal				85,909.05
Bond \$12/1000 +10% O&P				10,289.09
Subtotal				96,198.14
Location Adjustment Factor				1.00
Grand Total				\$96,198.14

This estimate is based on an interactive spreadsheet.

A copy of this spreadsheet is located on the RSMeans website at

<http://www.reedconstructiondata.com/rsmeans/extras/546011>

You are free to download it and adjust it to your methodology.

This example shows the cost to construct a pre-engineered steel building. The foundation, doors, windows, and insulation will be installed by the general contractor. A subcontractor will install the structural steel, roofing, and siding.

01/01/12			
Labor	Equipment	SubContract	EstimateTotal
\$2,383.10	\$14.33	\$0.00	
\$1,324.60	\$7.99	\$0.00	
\$0.00	\$0.00	\$0.00	
\$2,666.88	\$87.04	\$0.00	
\$1,010.00	\$0.00	\$0.00	
\$3,450.00	\$0.00	\$0.00	
\$795.00	\$0.00	\$0.00	
\$7,500.00	\$300.00	\$0.00	
\$247.00	\$58.50	\$0.00	
\$19,376.58	\$467.86	\$0.00	\$51,387.77
Division 03			
\$4,080.00	\$0.00	\$0.00	
\$0.00	\$0.00	\$0.00	
\$4,080.00	\$0.00	\$0.00	\$19,296.00
Division 04			
		\$287,250.00	
\$0.00	\$0.00	\$1,900.00	
\$0.00	\$0.00	\$8,400.00	
\$0.00	\$0.00	\$3,450.00	
\$572.00	\$0.00	\$0.00	
\$483.00	\$61.80	\$0.00	
\$851.20	\$0.00	\$0.00	
\$2,685.00	\$0.00	\$0.00	
\$7,000.00	\$0.00	\$0.00	
\$11,591.20	\$61.80	\$301,000.00	\$312,304.50
Division 13			
\$35,047.78	\$529.66	\$301,000.00	\$402,988.27
2,453.34	37.08	21,070.00	
	26.48	7,525.00	
37,501.12	593.22	329,595.00	
3,750.11	59.32	32,959.50	
41,251.24	652.54	362,554.50	
			Gen. Requirements
			Sales Tax
			Subtotal
			GC O & P
			Subtotal
			Contingency
			Subtotal
			Bond
			Subtotal
			Location Adjustment
102.30			Grand Total
			\$486,276.42
			24,313.82
			\$510,590.24
			6,739.79
			\$517,330.03
			11,898.59
			\$529,228.62

Sales Tax: If the work is subject to state or local sales taxes, the amount must be added to the estimate. Sales tax may be added to material costs, equipment costs, and subcontracted work. In this case, sales tax was added in all three categories. It was assumed that approximately half the subcontracted work would be material cost, so the tax was applied to 50% of the subcontract total.

GC O&P: This entry represents the general contractor's markup on material, labor, equipment, and subcontractor costs. RSMeans' standard markup on materials, equipment, and subcontracted work is 10%. In this estimate, the markup on the labor performed by the GC's workers uses "Skilled Workers Average" shown in Column F on the table "Installing Contractor's Overhead & Profit," which can be found on the inside-back cover of the book.

Contingency: A factor for contingency may be added to any estimate to represent the cost of unknowns that may occur between the time that the estimate is performed and the time the project is constructed. The amount of the allowance will depend on the stage of design at which the estimate is done, and the contractor's assessment of the risk involved. Refer to section 01 21 16.50 for contingency allowances.

Sample Estimate

This sample is a rough estimate of the total number of people who are involved in the project. It is based on a survey of the project's participants and is not intended to be a precise count. The survey was conducted in a way that was designed to be as accurate as possible, but it is still possible that there are some people who are not included in the sample. The sample is intended to provide a general idea of the size of the project and the number of people who are involved in it.

The sample is based on a survey of the project's participants. The survey was conducted in a way that was designed to be as accurate as possible, but it is still possible that there are some people who are not included in the sample. The sample is intended to provide a general idea of the size of the project and the number of people who are involved in it.

The sample is based on a survey of the project's participants. The survey was conducted in a way that was designed to be as accurate as possible, but it is still possible that there are some people who are not included in the sample. The sample is intended to provide a general idea of the size of the project and the number of people who are involved in it.

The sample is based on a survey of the project's participants. The survey was conducted in a way that was designed to be as accurate as possible, but it is still possible that there are some people who are not included in the sample. The sample is intended to provide a general idea of the size of the project and the number of people who are involved in it.

The sample is based on a survey of the project's participants. The survey was conducted in a way that was designed to be as accurate as possible, but it is still possible that there are some people who are not included in the sample. The sample is intended to provide a general idea of the size of the project and the number of people who are involved in it.

Project	Participant	Participant	Participant	Participant
Project A	Participant 1	Participant 2	Participant 3	Participant 4
Project B	Participant 5	Participant 6	Participant 7	Participant 8
Project C	Participant 9	Participant 10	Participant 11	Participant 12
Project D	Participant 13	Participant 14	Participant 15	Participant 16
Project E	Participant 17	Participant 18	Participant 19	Participant 20
Project F	Participant 21	Participant 22	Participant 23	Participant 24
Project G	Participant 25	Participant 26	Participant 27	Participant 28
Project H	Participant 29	Participant 30	Participant 31	Participant 32
Project I	Participant 33	Participant 34	Participant 35	Participant 36
Project J	Participant 37	Participant 38	Participant 39	Participant 40
Project K	Participant 41	Participant 42	Participant 43	Participant 44
Project L	Participant 45	Participant 46	Participant 47	Participant 48
Project M	Participant 49	Participant 50	Participant 51	Participant 52
Project N	Participant 53	Participant 54	Participant 55	Participant 56
Project O	Participant 57	Participant 58	Participant 59	Participant 60
Project P	Participant 61	Participant 62	Participant 63	Participant 64
Project Q	Participant 65	Participant 66	Participant 67	Participant 68
Project R	Participant 69	Participant 70	Participant 71	Participant 72
Project S	Participant 73	Participant 74	Participant 75	Participant 76
Project T	Participant 77	Participant 78	Participant 79	Participant 80
Project U	Participant 81	Participant 82	Participant 83	Participant 84
Project V	Participant 85	Participant 86	Participant 87	Participant 88
Project W	Participant 89	Participant 90	Participant 91	Participant 92
Project X	Participant 93	Participant 94	Participant 95	Participant 96
Project Y	Participant 97	Participant 98	Participant 99	Participant 100

Estimating Tips

01 20 00 Price and Payment Procedures

- Allowances that should be added to estimates to cover contingencies and job conditions that are not included in the national average material and labor costs are shown in section 01 21.

When estimating historic preservation projects (depending on the condition of the existing structure and the owner's requirements), a 15%-20% contingency or allowance is recommended, regardless of the stage of the drawings.

01 30 00 Administrative Requirements

- Before determining a final cost estimate, it is a good practice to review all the items listed in Subdivisions 01 31 and 01 32 to make final adjustments for items that may need customizing to specific job conditions.
- Requirements for initial and periodic submittals can represent a significant cost to the General Requirements of a job. Thoroughly check the submittal specifications when estimating a project to determine any costs that should be included.

01 40 00 Quality Requirements

- All projects will require some degree of Quality Control. This cost is not included in the unit cost of construction listed in each division. Depending upon

the terms of the contract, the various costs of inspection and testing can be the responsibility of either the owner or the contractor. Be sure to include the required costs in your estimate.

01 50 00 Temporary Facilities and Controls

- Barricades, access roads, safety nets, scaffolding, security, and many more requirements for the execution of a safe project are elements of direct cost. These costs can easily be overlooked when preparing an estimate. When looking through the major classifications of this subdivision, determine which items apply to each division in your estimate.

- Construction Equipment Rental Costs can be found in the Reference Section in section 01 54 33. Operators' wages are not included in equipment rental costs.
- Equipment mobilization and demobilization costs are not included in equipment rental costs and must be considered separately in section 01 54 36.50.
- The cost of small tools provided by the installing contractor for his workers is covered in the "Overhead" column on the "Installing Contractor's Overhead and Profit" table that lists labor trades, base rates and markups and, therefore, is included in the "Total Incl. O&P" cost of any Unit Price line item. For those users who are constrained by contract terms to use only bare costs, there are two line

items in section 01 54 39.70 for small tools as a percentage of bare labor cost. If some of those users are further constrained by contract terms to refrain from using line items from Division 1, you are advised to cover the cost of small tools within your coefficient or multiplier.

01 70 00 Execution and Closeout Requirements

- When preparing an estimate, thoroughly read the specifications to determine the requirements for Contract Closeout. Final cleaning, record documentation, operation and maintenance data, warranties and bonds, and spare parts and maintenance materials can all be elements of cost for the completion of a contract. Do not overlook these in your estimate.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

01 11 Summary of Work

01 11 31 – Professional Consultants

01 11 31.10 Architectural Fees		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Ind O&P
							Labor	Equipment		
0010	ARCHITECTURAL FEES									
0020	For new construction									
0060	Minimum				Project					4.90%
0090	Maximum									16%
0100	For alteration work, to \$500,000, add to new construction fee									50%
0150	Over \$500,000, add to new construction fee									25%
2000	For "Greening" of building									3%

01 11 31.20 Construction Management Fees

0010	CONSTRUCTION MANAGEMENT FEES									
0020	\$1,000,000 job, minimum				Project					4.50%
0050	Maximum									7.50%
0300	\$50,000,000 job, minimum									2.50%
0350	Maximum									4%

01 11 31.30 Engineering Fees

0010	ENGINEERING FEES									
0020	Educational planning consultant, minimum				Project					50%
0100	Maximum				"					2.50%
0200	Electrical, minimum				Contract					4.10%
0300	Maximum									10.10%
0400	Elevator & conveying systems, minimum									2.50%
0500	Maximum									5%
0600	Food service & kitchen equipment, minimum									8%
0700	Maximum									12%
0800	Landscaping & site development, minimum									2.50%
0900	Maximum									6%
1000	Mechanical (plumbing & HVAC), minimum									4.10%
1100	Maximum									10.10%
1200	Structural, minimum				Project					1%
1300	Maximum				"					2.50%

01 11 31.50 Models

0010	MODELS									
0020	Cardboard & paper, 1 building, minimum				Ea.	720			720	790
0050	Maximum					1,650			1,650	1,800
0100	2 buildings, minimum					965			965	1,050
0150	Maximum					2,175			2,175	2,400
0200	Plexiglass and metal, basic layout				SF Flr.	.07			.07	.08
0210	Including equipment and personnel				"	.32			.32	.35
0300	Site plan layout, minimum				Ea.	1,375			1,375	1,525
0350	Maximum				"	2,300			2,300	2,550

01 11 31.75 Renderings

0010	RENDERINGS Color, motted, 20" x 30", eye level,									
0020	1 building, minimum				Ea.	2,000			2,000	2,200
0050	Average					2,800			2,800	3,075
0100	Maximum					4,500			4,500	4,950
1000	5 buildings, minimum					4,000			4,000	4,400
1100	Maximum					8,000			8,000	8,800
2000	Aerial perspective, color, 1 building, minimum					2,900			2,900	3,200
2100	Maximum					7,900			7,900	8,700
3000	5 buildings, minimum					5,700			5,700	6,275
3100	Maximum					11,400			11,400	12,500

01 21 Allowances

01 21 16 – Contingency Allowances

01 21 16.50 Contingencies		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0010	CONTINGENCIES, Add to estimate									
0020	Conceptual stage				Project					20%
0050	Schematic stage									15%
0100	Preliminary working drawing stage (Design Dev.)									10%
0150	Final working drawing stage				↓					3%

01 21 55 – Job Conditions Allowance

01 21 55.50 Job Conditions

0010	JOB CONDITIONS Modifications to applicable									
0020	cost summaries									
0100	Economic conditions, favorable, deduct				Project				2%	2%
0200	Unfavorable, add								5%	5%
0300	Hoisting conditions, favorable, deduct								2%	2%
0400	Unfavorable, add								5%	5%
0500	General Contractor management, experienced, deduct								2%	2%
0600	Inexperienced, add								10%	10%
0700	Labor availability, surplus, deduct								1%	1%
0800	Shortage, add								10%	10%
0900	Material storage area, available, deduct								1%	1%
1000	Not available, add								2%	2%
1100	Subcontractor availability, surplus, deduct								5%	5%
1200	Shortage, add								12%	12%
1300	Work space, available, deduct								2%	2%
1400	Not available, add				↓				5%	5%

01 21 57 – Overtime Allowance

01 21 57.50 Overtime

0010	OVERTIME for early completion of projects or where	R012909-90								
0020	labor shortages exist, add to usual labor, up to				Costs		100%			

01 21 61 – Cost Indexes

01 21 61.10 Construction Cost Index

0010	CONSTRUCTION COST INDEX (Reference) over 930 zip code locations in									
0020	the U.S. and Canada, total bldg. cost, min. (Guymon, OK)				%					67.50%
0050	Average									100%
0100	Maximum (New York, NY)				↓					132.20%

01 21 61.20 Historical Cost Indexes

0010	HISTORICAL COST INDEXES (See Reference Section)									
------	---	--	--	--	--	--	--	--	--	--

01 21 61.30 Labor Index

0010	LABOR INDEX (Reference) For over 930 zip code locations in									
0020	the U.S. and Canada, minimum (Guymon, OK)				%		31%			
0050	Average						100%			
0100	Maximum (New York, NY)				↓		166.90%			

01 21 61.50 Material Index

0010	MATERIAL INDEX (Reference) For over 930 zip code locations in									
0020	the U.S. and Canada, minimum (Elizabethtown, KY)				%	91.40%				
0040	Average					100%				
0060	Maximum (Ketchikan, AK)				↓	141.30%				

01 21 63 – Taxes

01 21 63.10 Taxes

0010	TAXES	R012909-80								
0020	Sales tax, State, average				%	5.07%				
0050	Maximum	R012909-85			↓	9.25%				

01 21 Allowances

01 21 63 - Taxes

01 21 63.10 Taxes		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
					%		Labor	Equipment		
0200	Social Security, on first \$110,100 of wages						7.65%			
0300	Unemployment, combined Federal and State, minimum						.80%			
0350	Average						7.80%			
0400	Maximum						14.36%			

01 31 Project Management and Coordination

01 31 13 - Project Coordination

01 31 13.20 Field Personnel

01 31 13.20 FIELD PERSONNEL										
0010	Clerk, average				Week		420		420	650
0100	Field engineer, minimum						995		995	1,550
0120	Average						1,300		1,300	2,000
0140	Maximum						1,475		1,475	2,275
0160	General purpose laborer, average						1,375		1,375	2,125
0180	Project manager, minimum						1,850		1,850	2,850
0200	Average						2,125		2,125	3,275
0220	Maximum						2,425		2,425	3,750
0240	Superintendent, minimum						1,800		1,800	2,775
0260	Average						1,975		1,975	3,050
0280	Maximum						2,250		2,250	3,475
0290	Timekeeper, average						1,150		1,150	1,775

01 31 13.30 Insurance

01 31 13.30 INSURANCE										
0010	Builders risk, standard, minimum	R013113-40			Job					24%
0020	Maximum	R013113-50								64%
0050	All-risk type, minimum									25%
0200	Maximum	R013113-60								62%
0250	Contractor's equipment floater, minimum				Value					50%
0400	Maximum				"					1.50%
0450	Public liability, average				Job					2.02%
0600	Workers' compensation & employer's liability, average									
0800	by trade, carpentry, general				Payroll		14.96%			
0850	Clerical						.49%			
0900	Concrete						12.70%			
0950	Electrical						5.58%			
1000	Excavation						9.01%			
1050	Glazing						12.57%			
1100	Insulation						11.85%			
1150	Lathing						7.82%			
1200	Masonry						12.10%			
1250	Painting & decorating						10.70%			
1300	Pile driving						16.76%			
1350	Plastering						10.78%			
1400	Plumbing						6.91%			
1450	Roofing						28.83%			
1500	Sheet metal work (HVAC)						8.47%			
1550	Steel erection, structural						36.86%			
1600	Tile work, interior ceramic						8.01%			
1650	Waterproofing, brush or hand caulking						6.41%			
1700	Wrecking						30.43%			
1800	Range of 35 trades in 50 states, excl. wrecking, min.						1.80%			
2000										

01 31 Project Management and Coordination

01 31 13 – Project Coordination

01 31 13.30 Insurance		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
2100	Average				Payroll		Labor	Equipment		
2200	Maximum				↓		13.70%			
							124.10%			

01 31 13.40 Main Office Expense

0010	MAIN OFFICE EXPENSE Average for General Contractors	R013113-50								
0020	As a percentage of their annual volume									
0125	Annual volume under 1 million dollars				% Vol.				17.50%	
0145	Up to 2.5 million dollars				↓				8%	
0150	Up to 4.0 million dollars								6.80%	
0200	Up to 7.0 million dollars								5.60%	
0250	Up to 10 million dollars								5.10%	
0300	Over 10 million dollars				↓				3.90%	

01 31 13.50 General Contractor's Mark-Up

0010	GENERAL CONTRACTOR'S MARK-UP on Change Orders									
0200	Extra work, by subcontractors, add				%					10%
0250	By General Contractor, add				↓					15%
0400	Omitted work, by subcontractors, deduct all but									5%
0450	By General Contractor, deduct all but									7.50%
0600	Overtime work, by subcontractors, add									15%
0650	By General Contractor, add				↓					10%

01 31 13.60 Installing Contractor's Main Office Overhead

0010	INSTALLING CONTRACTOR'S MAIN OFFICE OVERHEAD	R013113-50								
0020	As percent of direct costs, minimum				%				5%	
0050	Average				↓				13%	
0100	Maximum								30%	

01 31 13.80 Overhead and Profit

0010	OVERHEAD & PROFIT Allowance to add to items in this									
0020	book that do not include Subs O&P, average				%				25%	
0100	Allowance to add to items in this book that									
0110	do include Subs O&P, minimum				%					5%
0150	Average				↓				10%	
0200	Maximum								15%	
0300	Typical, by size of project, under \$100,000								30%	
0350	\$500,000 project								25%	
0400	\$2,000,000 project								20%	
0450	Over \$10,000,000 project				↓				15%	

01 31 13.90 Performance Bond

0010	PERFORMANCE BOND	R013113-80								
0020	For buildings, minimum				Job				.60%	
0100	Maximum				"				2.50%	

01 32 Construction Progress Documentation

01 32 13 - Scheduling of work

01 32 13.50 Scheduling

		Daily Crew	Labor Output	Hours Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
0010	SCHEDULING								
0020	Critical path, as % of architectural fee, minimum			%					.50%
0100	Maximum			"					1%
0300	Computer-update, micro, no plats, minimum			Ea.				455	500
0400	Including plats, maximum			"				1,450	1,600
0600	Rule of thumb, CPM scheduling, small job (\$10 Million)			Job					.05%
0650	Large job (\$50 Million +)								.03%
0700	Including cost control, small job								.08%
0750	Large job								.04%

01 32 33 - Photographic Documentation

01 32 33.50 Photographs

0010	PHOTOGRAPHS								
0020	8" x 10", 4 shots, 2 prints ea., std. mounting			Set	475			475	520
0100	Hinged linen mounts				530			530	580
0200	8" x 10", 4 shots, 2 prints each, in color				415			415	460
0300	For I.D. slugs, add to all above				5.30			5.30	5.85
0500	Aerial photos, initial fly-over, 6 shots, 1 print ea., 8" x 10"				845			845	925
0550	11" x 14" prints				1,025			1,025	1,125
0600	16" x 20" prints				1,200			1,200	1,325
0700	For full color prints, add				40%				40%
0750	Add for traffic control area				305			305	335
0900	For over 30 miles from airport, add per			Mile	5.45			5.45	6
1000	Vertical photography, 4 to 6 shots with								
1010	different scales, 1 print each			Set	1,125			1,125	1,225
1500	Time lapse equipment, camera and projector, buy				845			845	930
1550	Rent per month				305			305	335
1700	Cameraman and film, including processing, B.&W.			Day	1,375			1,375	1,525
1720	Color			"	1,375			1,375	1,525

01 41 Regulatory Requirements

01 41 26 - Permit Requirements

01 41 26.50 Permits

0010	PERMITS								
0020	Rule of thumb, most cities, minimum			Job					.50%
0100	Maximum			"					2%

01 45 Quality Control

01 45 23 - Testing and Inspecting Services

01 45 23.50 Testing

0010	TESTING and Inspecting Services								
0015	For concrete building costing \$1,000,000, minimum			Project				4,725	5,200
0020	Maximum							38,000	41,800
0050	Steel building, minimum							4,725	5,200
0070	Maximum							14,800	16,300
0100	For building costing, \$10,000,000, minimum							30,100	33,100
0150	Maximum							48,200	53,000
0200	Asphalt testing, compressive strength Marshall stability, set of 3			Ea.				145	165
0220	Density, set of 3							86	95
0250	Extraction, individual tests on sample							136	150

01 45 Quality Control

01 45 23 – Testing and Inspecting Services

01 45 23.50 Testing		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
					Ea.		Labor	Equipment		
0300	Penetration								41	45
0350	Mix design, 5 specimens								182	200
0360	Additional specimen								36	40
0400	Specific gravity								41	45
0420	Swell test								64	70
0450	Water effect and cohesion, set of 6								182	200
0470	Water effect and plastic flow								64	70
0600	Concrete testing, aggregates, abrasion, ASTM C 131								136	150
0650	Absorption, ASTM C 127								42	46
0800	Petrographic analysis, ASTM C 295								775	850
0900	Specific gravity, ASTM C 127								50	55
1000	Sieve analysis, washed, ASTM C 136								59	65
1050	Unwashed								59	65
1200	Sulfate soundness								114	125
1300	Weight per cubic foot								36	40
1500	Cement, physical tests, ASTM C 150								320	350
1600	Chemical tests, ASTM C 150								245	270
1800	Compressive test, cylinder, delivered to lab, ASTM C 39								12	13
1900	Picked up by lab, minimum								14	15
1950	Average								18	20
2000	Maximum								27	30
2200	Compressive strength, cores (not incl. drilling), ASTM C 42				▼				36	40
2250	Core drilling, 4" diameter (plus technician)				Inch				23	25
2260	Technician for core drilling				Hr.				45	50
2300	Patching core holes				Ea.				22	24
2400	Drying shrinkage at 28 days								236	260
2500	Flexural test beams, ASTM C 78								59	65
2600	Mix design, one batch mix								259	285
2650	Added trial batches								120	132
2800	Modulus of elasticity, ASTM C 469								164	180
2900	Tensile test, cylinders, ASTM C 496								45	50
3000	Water-Cement ratio curve, 3 batches								141	155
3100	4 batches								186	205
3300	Masonry testing, absorption, per 5 brick, ASTM C 67								45	50
3350	Chemical resistance, per 2 brick								50	55
3400	Compressive strength, per 5 brick, ASTM C 67								68	75
3420	Efflorescence, per 5 brick, ASTM C 67								68	75
3440	Imperviousness, per 5 brick								87	96
3470	Modulus of rupture, per 5 brick								86	95
3500	Moisture, block only								32	35
3550	Mortar, compressive strength, set of 3								23	25
4100	Reinforcing steel, bend test								55	61
4200	Tensile test, up to #8 bar								36	40
4220	#9 to #11 bar								41	45
4240	#14 bar and larger								64	70
4400	Soil testing, Atterberg limits, liquid and plastic limits								59	65
4510	Hydrometer analysis								109	120
4530	Specific gravity, ASTM D 354								44	48
4600	Sieve analysis, washed, ASTM D 422								55	60
4700	Unwashed, ASTM D 422								59	65
4710	Consolidation test (ASTM D2435), minimum								250	275
4715	Maximum								430	475
4720	Density and classification of undisturbed sample				▼				73	80

01 45 Quality Control

01 45 23 - Testing and Inspecting Services

01 45 23.50 Testing		Daily Crew	Labor- Output	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
			Hours			Labor	Equipment		
4735	Soil density, nuclear method, ASTM D2922			Ea.				35	38.50
4740	Sand cone method ASTM D1556							27	30
4750	Moisture content, ASTM D 2216							9	10
4780	Permeability test, double ring infiltrometer							500	550
4800	Permeability, var. at constant head, undist., ASTM D 2434							227	250
4850	Recompacted							250	275
4900	Proctor compaction, 4" standard mold, ASTM D 698							123	135
4950	6" modified mold							68	75
5100	Shear tests, triaxial, minimum							410	450
5150	Maximum							545	600
5300	Direct shear, minimum, ASTM D 3080							320	350
5350	Maximum							410	450
5550	Technician for inspection, per day, earthwork							320	350
5650	Balting							400	440
5750	Roofing							480	530
5790	Welding			▼				480	530
5820	Non-destructive metal testing, dye penetrant			Day				310	340
5840	Magnetic particle							310	340
5860	Radiography							450	495
5880	Ultrasonic			▼				310	340
6000	Welding certification, minimum			Ea.				91	100
6100	Maximum			"				250	275
7000	Underground storage tank								
7500	Valumetric tightness test, <=12,000 gal.			Ea.				435	480
7510	<=30,000 gal.			"				615	675
7600	Vadose zone (soil gas) sampling, 10-40 samples, min.			Day				1,375	1,500
7610	Maximum			"				2,275	2,500
7700	Ground water monitoring incl. drilling 3 wells, min.			Total				4,550	5,000
7710	Maximum			"				6,375	7,000
8000	X-ray concrete slabs			Ea.				182	200
9000	Thermographic testing, for bldg envelope heat loss, average 2,000 S.F.			"					500

01 51 Temporary Utilities

01 51 13 - Temporary Electricity

01 51 13.80 Temporary Utilities

0010 TEMPORARY UTILITIES		1 Skwk	100	.080	CSF Flr	36.50	3.63	40.13	45.50
0100	Heat, incl. fuel and operation, per week, 12 hrs. per day	"	60	.133		69.50	6.05	75.55	86
0200	24 hrs. per day	1 Elec	34	.235		2.80	12.15	14.95	21
0350	Lighting, incl. service lamps, wiring & outlets, minimum	"	17	.471		5.85	24.50	30.35	43
0360	Maximum							.92	1.01
0400	Power for temp lighting only, 6.6 KWH, per month							1.65	1.82
0430	11.8 KWH, per month							3.30	3.63
0450	23.6 KWH, per month							47	51.50
0600	Power for job duration incl. elevator, etc., minimum							110	121
0650	Maximum								
1000	Toilet, portable, see Equip. Rental 01 54 33 in Reference Section								

01 52 Construction Facilities

01 52 13 – Field Offices and Sheds

01 52 13.20 Office and Storage Space		Daily	Labor-			2012 Bare Costs		Total	Total
		Crew	Output	Hours	Unit	Material	Labor	Equipment	Incl O&P
0010	OFFICE AND STORAGE SPACE								
0020	Office trailer, furnished, no hookups, 20' x 8', buy	2 Skwk	1	16	Ea.	8,550	725		10,500
0250	Rent per month					144			158
0300	32' x 8', buy	2 Skwk	.70	22.857		13,600	1,050		16,600
0350	Rent per month					185			203
0400	50' x 10', buy	2 Skwk	.60	26.667		22,300	1,200		26,500
0450	Rent per month					279			305
0500	50' x 12', buy	2 Skwk	.50	32		27,000	1,450		32,000
0550	Rent per month					365			400
0700	Fan air conditioning, rent per month, add					41.50			45.50
0800	Fan delivery, add per mile				Mile	4.60			5.05
0890	Delivery each way				Ea.	200			220
0900	Bunk house trailer, 8' x 40' duplex dorm with kitchen, no hookups, buy	2 Carp	1	16		37,300	705		42,100
0910	9 man with kitchen and bath, no hookups, buy		1	16		38,000	705		42,900
0920	18 man sleeper with bath, no hookups, buy		1	16		49,000	705		55,000
1000	Portable buildings, prefab, on skids, economy, 8' x 8'		265	.060	S.F.	86	2.66		98.50
1100	Deluxe, 8' x 12'		150	.107	"	96	4.70		113
1200	Storage boxes, 20' x 8', buy	2 Skwk	1.80	8.889	Ea.	2,625	405		3,500
1250	Rent per month					72			79
1300	40' x 8', buy	2 Skwk	1.40	11.429		3,325	520		4,450
1350	Rent per month					94			103
5000	Air supported structures, see Section 13 31 13.13								

01 52 13.40 Field Office Expense

0010	FIELD OFFICE EXPENSE								
0100	Office equipment rental average				Month	200		200	220
0120	Office supplies, average				"	75		75	82.50
0125	Office trailer rental, see Section 01 52 13.20								
0140	Telephone bill; avg. bill/month incl. long dist.				Month	81		81	89
0160	Lights & HVAC				"	152		152	167

01 54 Construction Aids

01 54 09 – Protection Equipment

01 54 09.50 Personnel Protective Equipment

0010	PERSONNEL PROTECTIVE EQUIPMENT								
0015	Hazardous waste protection								
0020	Respirator mask only, full face, silicone				Ea.	270		270	297
0030	Half face, silicone					42.50		42.50	46.50
0040	Respirator cartridges, 2 req'd/mask, dust or asbestos					2.64		2.64	2.90
0050	Chemical vapor					3.74		3.74	4.11
0060	Combination vapor and dust					6.45		6.45	7.10
0100	Emergency escape breathing apparatus, 5 min					465		465	510
0110	10 min					500		500	550
0150	Self contained breathing apparatus with full face piece, 30 min					1,750		1,750	1,925
0160	60 min					2,925		2,925	3,225
0200	Encapsulating suits, limited use, level A					1,200		1,200	1,325
0210	Level B					335		335	370
0300	Over boots, latex				Pr.	6.35		6.35	7
0310	PVC					23		23	25.50
0320	Neoprene					44		44	48.50
0400	Gloves, nitrile/PVC					21		21	23.50
0410	Neoprene coated					27.50		27.50	30.50

01 54 Construction Aids

01 54 09 - Protection Equipment

01 54 09.60 Safety Nets

		Daily Crew	Labor- Output	Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Inc O&P
0010	SAFETY NETS									
0020	No supports, stock sizes, nylon, 4" mesh				S.F.	1.10			1.10	1.21
0100	Polypropylene, 6" mesh					1.59			1.59	1.75
0200	Small mesh debris nets, 1/4" & 3/4" mesh, stock sizes					.74			.74	.81
0220	Combined 4" mesh and 1/4" mesh, stock sizes					2.05			2.05	2.26
0300	Monthly rental, 4" mesh, stock sizes, 1st month					.50			.50	.55
0320	2nd month rental					.25			.25	.28
0340	Maximum rental/year					1.15			1.15	1.27

01 54 16 - Temporary Hoists

01 54 16.50 Weekly Forklift Crew

0010	WEEKLY FORKLIFT CREW									
0100	All-terrain forklift, 45' lift, 35' reach, 9000 lb. capacity	A-3P	.20	40	Week		1,800	2,400	4,200	5,350

01 54 19 - Temporary Cranes

01 54 19.50 Daily Crane Crews

0010	DAILY CRANE CREWS for small jobs, portal to portal									
0100	12-ton truck-mounted hydraulic crane	A-3H	1	8	Day		380	825	1,205	1,475
0200	25-ton	A-3I	1	8			380	955	1,335	1,625
0300	40-ton	A-3J	1	8			380	1,175	1,555	1,875
0400	55-ton	A-3K	1	16			710	1,625	2,335	2,850
0500	80-ton	A-3L	1	16			710	2,275	2,985	3,575
0600	100-ton	A-3M	1	16			710	2,275	2,985	3,575

01 54 19.60 Monthly Tower Crane Crew

0010	MONTHLY TOWER CRANE CREW , excludes concrete footing									
0100	Static tower crane, 130' high, 106' jib, 6200 lb. capacity	A-3N	.05	176	Month		8,425	22,100	30,525	37,000

01 54 23 - Temporary Scaffolding and Platforms

01 54 23.60 Pump Staging

0010	PUMP STAGING , Aluminum									
0200	24' long pole section, buy				Eo.	330			330	365
0300	18' long pole section, buy					257			257	282
0400	12' long pole section, buy					173			173	190
0500	6' long pole section, buy					91.50			91.50	100
0600	6' long splice joint section, buy					67.50			67.50	74.50
0700	Pump jock, buy					136			136	149
0900	Foldable brace, buy					55			55	60.50
1000	Workbench/back safety rail support, buy					71.50			71.50	78.50
1100	Scaffolding planks/workbench, 14" wide x 24' long, buy					665			665	735
1200	Plank end safety rail, buy					288			288	315
1250	Safety net, 22' long, buy					320			320	355
1300	System in place, 50' working height, per use based on 50 uses	2 Corp	84.80	.189	C.S.F.	5.70	8.30		14	19.10
1400	100 uses		84.80	.189		2.86	8.30		11.16	15.95
1500	150 uses		84.80	.189		1.92	8.30		10.22	14.90

01 54 23.70 Scaffolding

0010	SCAFFOLDING									
0015	Steel tube, regular, no plank, labor only to erect & dismantle									
0090	Building exterior, wall face, 1 to 5 stories, 6'-4" x 5' frames	3 Corp	8	3	C.S.F.		132		132	204
0200	6 to 12 stories	4 Corp	8	4			176		176	271
0301	13 to 20 stories	5 Corp	8	5			176		176	270
0460	Building interior, wall face area, up to 16' high	3 Corp	12	2			88		88	136
0560	16' to 40' high		10	2.400			106		106	163
0800	Building interior floor area, up to 30' high		150	.160	C.C.F.		7.05		7.05	10.85

01 54 Construction Aids

01 54 23 – Temporary Scaffolding and Platforms

01 54 23.70 Scaffolding		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0900	Over 30' high	4 Corp	160	.200	C.C.F.		8.80		8.80	13.55
0906	Complete system for face of walls, no plank, material only rent/mo				C.S.F.	36			36	39.50
0908	Interior spaces, no plank, material only rent/mo				C.C.F.	3.42			3.42	3.76
0910	Steel tubular, heavy duty shoring, buy									
0920	Frames 5' high 2' wide				Ea.	81.50			81.50	90
0925	5' high 4' wide					93			93	102
0930	6' high 2' wide					93.50			93.50	103
0935	6' high 4' wide				▼	109			109	120
0940	Accessories									
0945	Cross braces				Ea.	15.85			15.85	17.40
0950	U-head, 8" x 8"					19.10			19.10	21
0955	J-head, 4" x 8"					13.90			13.90	15.30
0960	Base plate, 8" x 8"					15.50			15.50	17.05
0965	Leveling jock				▼	33.50			33.50	36.50
1000	Steel tubular, regular, buy									
1100	Frames 3' high 5' wide				Ea.	75			75	82.50
1150	5' high 5' wide					88			88	96.50
1200	6'-4" high 5' wide					118			118	129
1350	7'-6" high 6' wide					158			158	173
1500	Accessories cross braces					15.50			15.50	17.05
1550	Guardrail post					16.40			16.40	18.05
1600	Guardrail 7' section					6.30			6.30	6.95
1650	Screw jacks & plates					21.50			21.50	24
1700	Sideorm brackets					25.50			25.50	28.50
1750	8" casters					31			31	34
1800	Plank 2" x 10" x 16'-0"					24.50			24.50	27
1900	Stairway section					275			275	305
1910	Stairway starter bar					32			32	35
1920	Stairway inside handrail					53			53	58
1930	Stairway outside handrail					81.50			81.50	90
1940	Walk-thru frame guardrail				▼	41.50			41.50	46
2000	Steel tubular, regular, rent/mo.									
2100	Frames 3' high 5' wide				Ea.	5			5	5.50
2150	5' high 5' wide					5			5	5.50
2200	6'-4" high 5' wide					5.15			5.15	5.65
2250	7'-6" high 6' wide					7			7	7.70
2500	Accessories, cross braces					1			1	1.10
2550	Guardrail post					1			1	1.10
2600	Guardrail 7' section					1			1	1.10
2650	Screw jacks & plates					2			2	2.20
2700	Sideorm brackets					2			2	2.20
2750	8" casters					8			8	8.80
2800	Outrigger for rolling tower					3			3	3.30
2850	Plank 2" x 10" x 16'-0"					6			6	6.60
2900	Stairway section					40			40	44
2940	Walk-thru frame guardrail				▼	2.50			2.50	2.75
3000	Steel tubular, heavy duty shoring, rent/mo.									
3250	5' high 2' & 4' wide				Ea.	5			5	5.50
3300	6' high 2' & 4' wide					5			5	5.50
3500	Accessories, cross braces					1			1	1.10
3600	U-head, 8" x 8"					1			1	1.10
3650	J-head, 4" x 8"					1			1	1.10
3700	Base plate, 8" x 8"				▼	1			1	1.10

01 54 Construction Aids

01 54 23 - Temporary Scaffolding and Platforms

01 54 23.70 Scaffolding		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
3750	Leveling jack				Ea.	2			2	2.20
5700	Planks, 2" x 10" x 16'-0", labor only to erect & remove to 50' H	3 Corp	72	.333			14.70		14.70	22.50
5800	Over 50' high	4 Corp	80	.400			17.65		17.65	27
6000	Heavy duty shoring for elevated slab forms to 8'-2" high, floor area									
6100	Labor only to erect & dismantle	4 Corp	16	2	C.S.F.		88		88	136
6110	Materials only, rent/mo				"	29.50			29.50	32.50
6500	To 14'-8" high									
6600	Labor only to erect & dismantle	4 Corp	10	3.200	C.S.F.		141		141	217
6610	Materials only, rent/mo				"	43			43	47.50

01 54 23.75 Scaffolding Specialties

0010 SCAFFOLDING SPECIALTIES										
1200	Sidewalk bridge, heavy duty steel posts & beams, including									
1210	parapet protection & waterproofing									
1220	8' to 10' wide, 2 posts	3 Corp	15	1.600	L.F.	32	70.50		102.50	144
1230	3 posts	"	10	2.400	"	48.50	106		154.50	217
1500	Sidewalk bridge using tubular steel									
1510	scaffold frames, including planking	3 Corp	45	.533	L.F.	5.60	23.50		29.10	42
1600	For 2 uses per month, deduct from all above					50%				
1700	For 1 use every 2 months, add to all above					100%				
1900	Cotwalks, 20" wide, no guardrails, 7' span, buy				Eo.	133			133	146
2000	10' span, buy					186			186	205
3720	Putlog, standard, 8' span, with hangers, buy					66.50			66.50	73
3730	Rent per month					10			10	11
3750	12' span, buy					99			99	109
3755	Rent per month					15			15	16.50
3760	Trussed type, 16' span, buy					228			228	251
3770	Rent per month					20			20	22
3790	22' span, buy					274			274	300
3795	Rent per month					30			30	33
3800	Rolling ladders with handrails, 30" wide, buy, 2 step					229			229	252
4000	7 step					710			710	780
4050	10 step					985			985	1,075
4100	Rolling towers, buy, 5' wide, 7' long, 10' high					1,200			1,200	1,325
4200	For 5' high added sections, to buy, odd					207			207	228
4300	Complete incl. wheels, railings, outriggers,									
4350	21' high, to buy				Ea.	2,025			2,025	2,225
4400	Rent/month = 5% of purchase cost				"	113			113	124

01 54 23.80 Staging Aids

0010 STAGING AIDS and fall protection equipment										
0100	Sidewall staging bracket, tubular, buy				Ea.	45			45	49.50
0110	Cost each per day, based on 250 days use				Day	.18			.18	.20
0200	Guard post, buy				Ea.	19.85			19.85	22
0210	Cost each per day, based on 250 days use				Day	.08			.08	.09
0300	End guard chains, buy per pair				Poir	27			27	30
0310	Cost per set per day, based on 250 days use				Day	.18			.18	.20
1000	Roof shingling bracket, steel, buy				Ea.	8.90			8.90	9.80
1010	Cost each per day, based on 250 days use				Day	.04			.04	.04
1100	Wood bracket, buy				Ea.	16.80			16.80	18.50
1110	Cost each per day, based on 250 days use				Day	.07			.07	.07
2000	Ladder jack, aluminum, buy per pair				Poir	97			97	107
2010	Cost per pair per day, based on 250 days use				Day	.39			.39	.43
2100	Steel sidetail jack, buy per pair				Poir	97.50			97.50	107

01 54 Construction Aids

01 54 23 – Temporary Scaffolding and Platforms

01 54 23.80 Staging Aids		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
							Labor	Equipment		
2110	Cost per pair per day, based on 250 days use				Day	.39			.39	.43
3000	Laminated wood plank, 2" x 10" x 16', buy				EO.	49.50			49.50	54.50
3010	Cost each per day, based on 250 days use				Day	.20			.20	.22
3100	Aluminum scaffolding plank, 20" wide x 24' long, buy				EO.	785			785	865
3110	Cost each per day, based on 250 days use				Day	3.15			3.15	3.46
4000	Nylon full body harness, lanyard and rope grab				EO.	172			172	189
4010	Cost each per day, based on 250 days use				Day	.69			.69	.76
4100	Rope for safety line, 5/8" x 100' nylon, buy				EO.	56			56	61.50
4110	Cost each per day, based on 250 days use				Day	.22			.22	.25
4200	Permanent U-Bolt roof anchor, buy				EO.	31			31	34
4300	Temporary (one use) roof ridge anchor, buy				"	32			32	35.50
5000	Installation (setup and removal) of staging aids									
5010	Sidewall staging bracket	2 Corp	64	.250	EO.		11.05		11.05	16.95
5020	Guard post with 2 wood rails	"	64	.250			11.05		11.05	16.95
5030	End guard chains, set	1 Corp	64	.125			5.50		5.50	8.50
5100	Roof shingling bracket		96	.083			3.67		3.67	5.65
5200	Ladder jack	▼	64	.125			5.50		5.50	8.50
5300	Wood plank, 2" x 10" x 16'	2 Corp	80	.200			8.80		8.80	13.55
5310	Aluminum scaffold plank, 20" x 24'	"	40	.400			17.65		17.65	27
5410	Safety rope	1 Corp	40	.200			8.80		8.80	13.55
5420	Permanent U-Bolt roof anchor (install only)	2 Corp	40	.400			17.65		17.65	27
5430	Temporary roof ridge anchor (install only)	1 Corp	64	.125	▼		5.50		5.50	8.50

01 54 26 – Temporary Swing Staging

01 54 26.50 Swing Staging

0010	SWING STAGING, 500 lb. cap., 2' wide to 24' long, hand operated				EO.	4,900			4,900	5,375
0020	steel cable type, with 60' cables, buy				"	490			490	540
0030	Rent per month									
0600	Lightweight (not for masons) 24' long for 150' height,									
0610	manual type, buy				EO.	10,200			10,200	11,200
0620	Rent per month					1,025			1,025	1,125
0700	Powered, electric or air, to 150' high, buy					25,600			25,600	28,200
0710	Rent per month					1,800			1,800	1,975
0780	To 300' high, buy					26,000			26,000	28,600
0800	Rent per month					1,825			1,825	2,000
1000	Bosun's chair or work basket 3' x 3.5', to 300' high, electric, buy					10,400			10,400	11,400
1010	Rent per month				▼	730			730	800
2200	Move swing staging (setup and remove)	E-4	2	16	Move		800	61	861	1,500

01 54 36 – Equipment Mobilization

01 54 36.50 Mobilization

0010	MOBILIZATION (Use line item again for demobilization)									
0015	Up to 25 mi haul dist (50 mi RT for mob/demob crew)									
0020	Dozer, loader, backhoe, excov., grader, pover, roller, 70 to 150 H.P.	B-34N	4	2	EO.		70.50	126	196.50	246
0100	Above 150 HP	B-34K	3	2.667			94	283	377	455
0300	Scraper, towed type (incl. tractor), 6 C.Y. capacity		3	2.667			94	283	377	455
0400	10 C.Y.		2.50	3.200			113	340	453	545
0600	Self-propelled scraper, 15 C.Y.		2.50	3.200			113	340	453	545
0700	24 C.Y.		2	4			141	425	566	680
0900	Shovel or dragline, 3/4 C.Y.		3.60	2.222			78.50	236	314.50	380
1000	1-1/2 C.Y.	▼	3	2.667			94	283	377	455
1100	Small equipment, placed in rear of, or towed by pickup truck	A-3A	8	1			34.50	17.40	51.90	71
1150	Equip up to 70 HP, on flatbed trailer behind pickup truck	A-3D	4	2			68.50	62	130.50	172
2000	Crane, truck-mounted, up to 75 ton, (driver only, one-way)	1 Eqtv	7.20	1.111	▼		53		53	80

01 54 Construction Aids

01 54 36 – Equipment Mobilization

01 54 36.50 Mobilization		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
							Labor	Equipment		
2100	Crane, truck-mounted, over 75 ton	A-3E	2.50	6.400	Ea.		266	55.50	321.50	460
2200	Crawler-mounted, up to 75 ton	A-3F	2	8			330	435	765	985
2300	Over 75 ton	A-3G	1.50	10.667	▼		445	660	1,105	1,400
2500	For each additional 5 miles haul distance, add						10%	10%		
3000	For large pieces of equipment, allow for assembly/knockdown									
3001	For mob/demob of vibrofloatation equip, see Section 31 45 13.10									
3100	For mob/demob of micro-tunneling equip, see Section 33 05 23.19									
3200	For mob/demob of pile driving equip, see Section 31 62 19.10									
3300	For mob/demob of caisson drilling equip, see Section 31 63 26.13									

01 54 39 – Construction Equipment

01 54 39.70 Small Tools

0010	SMALL TOOLS	R013113-50								
0020	As % of contractor's bare labor cost for project, minimum				Total		.50%			
0100	Maximum				"		2%			

01 55 Vehicular Access and Parking

01 55 23 – Temporary Roads

01 55 23.50 Roads and Sidewalks

0010	ROADS AND SIDEWALKS Temporary									
0050	Roads, gravel fill, no surfacing, 4" gravel depth	B-14	715	.067	S.Y.	4.15	2.49	.47	7.11	8.90
0100	8" gravel depth	"	615	.078	"	8.30	2.89	.54	11.73	14.20
1000	Ramp, 3/4" plywood on 2" x 6" joists, 16" O.C.	2 Corp	300	.053	S.F.	1.23	2.35		3.58	4.98
1100	On 2" x 10" joists, 16" O.C.	"	275	.058	"	1.70	2.57		4.27	5.80

01 56 Temporary Barriers and Enclosures

01 56 13 – Temporary Air Barriers

01 56 13.60 Tarpaulins

0010	TARPAULINS									
0020	Cotton duck, 10 oz. to 13.13 oz. per S.Y., minimum			S.F.		.78			.78	.86
0050	Maximum					.80			.80	.88
0100	Polyvinyl coated nylon, 14 oz. to 18 oz., minimum					.48			.48	.53
0150	Maximum					.68			.68	.75
0200	Reinforced polyethylene 3 mils thick, white					.15			.15	.17
0300	4 mils thick, white, clear or black					.20			.20	.22
0400	5.5 mils thick, clear					.23			.23	.25
0500	White, fire retardant					.35			.35	.39
0600	12 mils, oil resistant, fire retardant					.28			.28	.31
0700	8.5 mils, black					.57			.57	.63
0710	Woven polyethylene, 6 mils thick					.35			.35	.39
0730	Polyester reinforced w/integral fastening system 11 mils thick					1.07			1.07	1.18
0740	Mylar polyester, non-reinforced, 7 mils thick				▼	1.17			1.17	1.29

01 56 13.90 Winter Protection

0010	WINTER PROTECTION									
0100	Forming to close openings	2 Clab	750	.021	S.F.	.39	.75		1.14	1.58
0200	Tarpaulins hung over scaffolding, 8 uses, not incl. scaffolding		1500	.011		.25	.37		.62	.86
0250	Tarpaulin polyester reinf. w/integral fastening system 11 mils thick		1600	.010		.80	.35		1.15	1.42
0300	Prefab fiberglass panels, steel frame, 8 uses	▼	1200	.013	▼	.85	.47		1.32	1.66

01 56 Temporary Barriers and Enclosures

01 56 16 – Temporary Dust Barriers

01 56 16.10 Dust Barriers, Temporary				Daily Labor- Crew Output Hours Unit	Material	2012 Bare Costs Labor Equipment		Total	Total Ind O&P
0010	DUST BARRIERS, TEMPORARY								
0020	Spring loaded telescoping pole & head, to 12', erect and dismantle			1 Clab	240 .033 Ea.		1.17	1.17	1.80
0025	Cast per day (based upon 250 days)				Day	.24		.24	.26
0030	To 21', erect and dismantle			1 Clab	240 .033 Ea.		1.17	1.17	1.80
0035	Cast per day (based upon 250 days)				Day	.39		.39	.42
0040	Accessories, caution tape reel, erect and dismantle			1 Clab	480 .017 Ea.		.59	.59	.90
0045	Cast per day (based upon 250 days)				Day	.05		.05	.05
0060	Foam rail and connector, erect and dismantle			1 Clab	240 .033 Ea.		1.17	1.17	1.80
0065	Cast per day (based upon 250 days)				Day	.10		.10	.11
0070	Caution tape			1 Clab	384 .021 C.L.F.	2.65	.73	3.38	4.03
0080	Zipper, standard duty				60 .133 Ea.	8	4.68	12.68	16
0090	Heavy duty				48 .167 "	9.50	5.85	15.35	19.45
0100	Polyethylene sheet, 4 mil				37 .216 Sq.	3.23	7.60	10.83	15.25
0110	6 mil			▼	37 .216 "	4.54	7.60	12.14	16.70
1000	Dust partition, 6 mil polyethylene, 1" x 3" frame			2 Carp	2000 .008 S.F.	.27	.35	.62	.84
1080	2" x 4" frame			"	2000 .008 "	.29	.35	.64	.86

01 56 23 – Temporary Barricades

01 56 23.10 Barricades

0010	BARRICADES								
0020	5' high, 3 rail @ 2" x 8", fixed			2 Carp	20 .800 L.F.	5.30	35.50	40.80	60.50
0150	Movable			"	30 .533 "	4.35	23.50	27.85	41
0300	Stack units, 6' high, 8' wide, plain, buy				Ea.	475		475	520
0350	With reflective tape, buy				"	540		540	595
0400	Break-a-way 3" PVC pipe barricade								
0410	with 3 ea. 1' x 4' reflectarized panels, buy				Ea.	160		160	176
0500	Plywood with steel legs, 32" wide					99.50		99.50	109
0600	Warning signal flag tree, 11' high, 2 flags, buy					330		330	365
0800	Traffic cones, PVC, 18" high					10		10	11
0850	28" high				▼	11.60		11.60	12.80
1000	Guardrail, wooden, 3' high, 1" x 6", on 2" x 4" posts			2 Carp	200 .080 L.F.	1.15	3.53	4.68	6.70
1100	2" x 6", on 4" x 4" posts			"	165 .097	2.26	4.28	6.54	9.10
1200	Portable metal with base pads, buy					15.25		15.25	16.75
1250	Typical installation, assume 10 reuses			2 Carp	600 .027	2.50	1.18	3.68	4.56
1300	Barricade tape, polyethylene, 7 mil, 3" wide x 500' lang roll				Ea.	25		25	27.50
5000	Barricades, see Section 01 54 33.40								

01 56 26 – Temporary Fencing

01 56 26.50 Temporary Fencing

0010	TEMPORARY FENCING								
0020	Chain link, 11 ga, 5' high			2 Clab	400 .040 L.F.	4.50	1.40	5.90	7.10
0100	6' high				300 .053	5.30	1.87	7.17	8.75
0200	Rented chain link, 6' high, to 1000' (up to 12 ma.)				400 .040	6.30	1.40	7.70	9.10
0250	Over 1000' (up to 12 ma.)			▼	300 .053	3.29	1.87	5.16	6.50
0350	Plywood, painted, 2" x 4" frame, 4' high			A-4	135 .178	5.45	7.50	12.95	17.45
0400	4" x 4" frame, 8' high			"	110 .218	10.20	9.20	19.40	25.50
0500	Wire mesh on 4" x 4" posts, 4' high			2 Carp	100 .160	9.25	7.05	16.30	21
0550	8' high			"	80 .200	13.90	8.80	22.70	29

01 56 29 – Temporary Protective Walkways

01 56 29.50 Protection

0010	PROTECTION								
0020	Stair tread, 2" x 12" planks, 1 use			1 Carp	75 .107 Tread	3.83	4.70	8.53	11.45

01 56 Temporary Barriers and Enclosures

01 56 29 – Temporary Protective Walkways

01 56 29.50 Protection		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0100	Exterior plywood, 1/2" thick, 1 use	1 Corp	65	.123	Tread	1.41	5.45		6.86	9.90
0200	3/4" thick, 1 use		60	.133	↓	2.10	5.90		8	11.35
2200	Sidewalks, 2" x 12" planks, 2 uses		350	.023	S.F.	.64	1.01		1.65	2.25
2300	Exterior plywood, 2 uses, 1/2" thick		750	.011		.24	.47		.71	.98
2400	5/8" thick		650	.012		.31	.54		.85	1.18
2500	3/4" thick	↓	600	.013	↓	.35	.59		.94	1.29

01 56 32 – Temporary Security

01 56 32.50 Watchman

0010	WATCHMAN									
0020	Service, monthly basis, uniformed person, minimum				Hr.				25	27.50
0100	Maximum								45.50	50
0200	Person and command dog, minimum								31	34
0300	Maximum				↓				54.50	60
0500	Sentry dog, leased, with job patrol (yard dog), 1 dog				Week				290	320
0600	2 dogs				"				390	430
0800	Purchase, trained sentry dog, minimum				Ea.				1,375	1,500
0900	Maximum				"				2,725	3,000

01 58 Project Identification

01 58 13 – Temporary Project Signage

01 58 13.50 Signs

0010	SIGNS									
0020	High intensity reflectorized, no posts, buy				S.F.	34			34	37.50

01 71 Examination and Preparation

01 71 23 – Field Engineering

01 71 23.13 Construction Layout

0010	CONSTRUCTION LAYOUT									
1100	Crew for layout of building, trenching or pipe laying, 2 person crew	A-6	1	16	Day		705	78.50	783.50	1,150
1200	3 person crew	A-7	1	24			1,150	78.50	1,228.50	1,850
1400	Crew for roadway layout, 4 person crew	A-8	1	32	↓		1,500	78.50	1,578.50	2,375

01 71 23.19 Surveyor Stakes

0010	SURVEYOR STAKES									
0020	Hardwood, 1" x 1" x 48" long				C	66			66	72.50
0100	2" x 2" x 18" long				↓	74			74	81.50
0150	2" x 2" x 24" long				↓	130			130	143

01 74 Cleaning and Waste Management

01 74 13 – Progress Cleaning

01 74 13.20 Cleaning Up		Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
CLEANING UP							Labor	Equipment		
0010	After job completion, allow, minimum				Job					.30%
0020	Maximum				"					1%
0050	Cleanup of floor area, continuous, per day, during const.	A-5	24	.750	M.S.F.	1.75	26.50	2.20	30.45	45
0100	Final by GC at end of job	"	11.50	1.565	"	2.78	55	4.59	62.37	92
0200	Rubbish removal, see Section 02 41 19.23									

01 76 Protecting Installed Construction

01 76 13 – Temporary Protection of Installed Construction

01 76 13.20 Temporary Protection

01 76 13.20 TEMPORARY PROTECTION										
0010	Flooring, 1/8" tempered hardboard, taped seams	2 Carp	1500	.011	S.F.	.38	.47		.85	1.14
0030	Peel away carpet protection	1 Clab	3200	.003	"	.11	.09		.20	.26

01 91 Commissioning

01 91 13 – General Commissioning Requirements

01 91 13.50 Building Commissioning

01 91 13.50 BUILDING COMMISSIONING										
0100	Basic building commissioning, minimum				%					.25%
0150	Maximum				↓					.50%
0200	Enhanced building commissioning, minimum									.50%
0250	Maximum				↓					1%

Division Notes

[illegible]

Estimating Tips

02 30 00 Subsurface Investigation

In preparing estimates on structures involving earthwork or foundations, all information concerning soil characteristics should be obtained. Look particularly for hazardous waste, evidence of prior dumping of debris, and previous stream beds.

02 41 00 Demolition and Structure Moving

The costs shown for selective demolition do not include rubbish handling or disposal. These items should be estimated separately using RSMeans data or other sources.

- Historic preservation often requires that the contractor remove materials from the existing structure, rehab them, and replace them. The estimator must be aware of any related measures and precautions that must be taken when doing selective demolition and cutting and patching. Requirements may include special handling and storage, as well as security.

- In addition to Subdivision 02 41 00, you can find selective demolition items in each division. Example: Roofing demolition is in Division 7.

02 42 10 Building Deconstruction

This section provides costs for the careful dismantling and recycling of most of low-rise building materials.

02 56 13 Containment of Hazardous Waste

This section addresses on-site hazardous waste disposal costs.

02 80 00 Hazardous Material Disposal/Remediation

This subdivision includes information on hazardous waste handling, asbestos remediation, lead remediation, and mold remediation. See reference R028213-20 and R028319-60 for further guidance in using these unit price lines.

02 91 10 Monitoring Chemical Sampling, Testing Analysis

This section provides costs for on-site sampling and testing hazardous waste.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

02 21 Surveys

02 21 13 – Site Surveys

02 21 13.09 Topographical Surveys		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Ind O&P
0010 TOPOGRAPHICAL SURVEYS							Labor	Equipment		
0020	Topographical surveying, conventional, minimum	A-7	3.30	7.273	Acre	18.90	350	24	392.90	590
0100	Maximum	A-8	.60	53.333	"	58	2,500	131	2,689	4,025

02 21 13.13 Boundary and Survey Markers

0010 BOUNDARY AND SURVEY MARKERS										
0300	Lot location and lines, large quantities, minimum	A-7	2	12	Acre	33.50	580	39.50	653	970
0320	Average	"	1.25	19.200		53.50	925	63	1,041.50	1,550
0400	Small quantities, maximum	A-8	1	32		71.50	1,500	78.50	1,650	2,475
0600	Monuments, 3' long	A-7	10	2.400	Ea.	31.50	116	7.85	155.35	221
0800	Property lines, perimeter, cleared land	"	1000	.024	L.F.	.04	1.16	.08	1.28	1.91
0900	Wooded land	A-8	875	.037	"	.06	1.71	.09	1.86	2.79

02 21 13.16 Aerial Surveys

0010 AERIAL SURVEYS										
1500	Aerial surveying, including ground control, minimum fee, 10 acres				Total					4,400
1510	100 acres									8,800
1550	From existing photography, deduct				▼					1,500
1600	2' contours, 10 acres				Acre					160
1650	20 acres									80
1800	50 acres									35
1850	100 acres									28
2000	1000 acres									28
2050	10,000 acres				▼					28
2150	For 1' contours and									
2160	dense urban areas, add to above				Acre					20%
3000	Inertial guidance system for									
3010	locating coordinates, rent per day				Ea.					4,400

02 32 Geotechnical Investigations

02 32 13 – Subsurface Drilling and Sampling

02 32 13.10 Boring and Exploratory Drilling

0010 BORING AND EXPLORATORY DRILLING										
0020	Barings, initial field stake out & determination of elevations	A-6	1	16	Day		705	78.50	783.50	1,150
0100	Drawings showing boring details				Total		310		310	390
0200	Report and recommendations from P.E.						720		720	900
0300	Mobilization and demobilization	B-55	4	6	▼		209	246	455	590
0350	For over 100 miles, per added mile		450	.053	Mile		1.86	2.18	4.04	5.25
0600	Auger holes in earth, no samples, 2-1/2" diameter		78.60	.305	L.F.		10.65	12.50	23.15	30
0650	4" diameter		67.50	.356			12.40	14.55	26.95	35
0800	Cased borings in earth, with samples, 2-1/2" diameter		55.50	.432		22	15.05	17.70	54.75	66.50
0850	4" diameter	▼	32.60	.736		34.50	25.50	30	90	111
1000	Drilling in rock, "BX" core, no sampling	B-56	34.90	.458			18.30	40.50	58.80	72.50
1050	With casing & sampling		31.70	.505		22	20	45	87	104
1200	"NX" core, no sampling		25.92	.617			24.50	55	79.50	98
1250	With casing and sampling	▼	25	.640	▼	26.50	25.50	57	109	131
1400	Borings, earth, drill rig and crew with truck mounted auger	B-55	1	24	Day		835	985	1,820	2,350
1450	Rack using crawler type drill	B-56	1	16	"		640	1,425	2,065	2,525
1500	For inner city borings add, minimum									10%
1510	Maximum									20%

02 32 Geotechnical Investigations

02 32 19 – Exploratory Excavations

02 32 19.10 Test Pits		Daily Crew	Labor- Output	Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0010	TEST PITS									
0020	Hand digging, light soil	1 Clab	4.50	1.778	C.Y.		62.50		62.50	96
0100	Heavy soil	"	2.50	3.200			112		112	173
0120	Loader-backhoe, light soil	B-11M	28	.571			23.50	13	36.50	50
0130	Heavy soil	"	20	.800			32.50	18.20	50.70	69.50
1000	Subsurface exploration, mobilization				Mile				6.25	7.85
1010	Difficult access for rig, add				Hr.				240	300
1020	Auger borings, drill rig, incl. samples				L.F.				23	28
1030	Hand auger								29	36
1050	Drill and sample every 5', split spoon								29	36
1060	Extra samples				Ea.				35	44

02 41 Demolition

02 41 13 – Selective Site Demolition

02 41 13.15 Hydrodemolition

0010	HYDRODEMOLITION	R024119-10								
0015	Hydrodemolition, concrete pavement, 4000 PSI, 2" depth		B-5	500	.112	S.F.	4.33	2.63	6.96	9.50
0120	4" depth			450	.124		4.81	2.92	7.73	10.55
0130	6" depth			400	.140		5.40	3.29	8.69	11.85
0410	6000 PSI, 2" depth			410	.137		5.30	3.21	8.51	11.60
0420	4" depth			350	.160		6.20	3.76	9.96	13.60
0430	6" depth			300	.187		7.20	4.38	11.58	15.85
0510	8000 PSI, 2" depth			330	.170		6.55	3.99	10.54	14.45
0520	4" depth			280	.200		7.75	4.70	12.45	16.95
0530	6" depth			240	.233		9	5.50	14.50	19.85

02 41 13.17 Demolish, Remove Pavement and Curb

0010	DEMOLISH, REMOVE PAVEMENT AND CURB	R024119-10								
5010	Pavement removal, bituminous roads, 3" thick		B-38	690	.058	S.Y.	2.30	1.71	4.01	5.40
5050	4" to 6" thick			420	.095		3.78	2.82	6.60	8.85
5100	Bituminous driveways			640	.063		2.48	1.85	4.33	5.80
5200	Concrete to 6" thick, hydraulic hammer, mesh reinforced			255	.157		6.25	4.64	10.89	14.60
5300	Rad reinforced			200	.200		7.95	5.90	13.85	18.60
5400	Concrete, 7" to 24" thick, plain			33	1.212	C.Y.	48	36	84	113
5500	Reinforced			24	1.667	"	66	49.50	115.50	155
5600	With hand held air equipment, bituminous, to 6" thick		B-39	1900	.025	S.F.	.94	.11	1.05	1.55
5700	Concrete to 6" thick, no reinforcing			1600	.030		1.11	.13	1.24	1.84
5800	Mesh reinforced			1400	.034		1.27	.15	1.42	2.11
5900	Rad reinforced			765	.063		2.32	.27	2.59	3.86
6000	Curbs, concrete, plain		B-6	360	.067	L.F.	2.55	.93	3.48	4.92
6100	Reinforced			275	.087		3.34	1.21	4.55	6.45
6200	Granite			360	.067		2.55	.93	3.48	4.92
6300	Bituminous			528	.045		1.74	.63	2.37	3.36

02 41 13.33 Minor Site Demolition

0010	MINOR SITE DEMOLITION	R024119-10								
0015	No hauling, abandon catch basin or manhole		B-6	7	3.429	Ea.	131	47.50	178.50	254
0020	Remove existing catch basin or manhole, masonry			4	6		230	83.50	313.50	440
0030	Catch basin or manhole frames and covers, stored			13	1.846		70.50	25.50	96	137
0040	Remove and reset			7	3.429		131	47.50	178.50	254
0100	Roadside delineators, remove only		B-80	175	.183		6.90	3.82	10.72	14.75
0110	Remove and reset		"	100	.320		12.10	6.70	18.80	26

02 41 Demolition

02 41 13 - Selective Site Demolition

02 41 13.33 Minor Site Demolition		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0800	Guiderail, corrugated steel, remove only	B-80A	100	.240	L.F.		8.40	2.64	11.04	15.85
0850	Remove and reset	"	40	.600	"		21	6.60	27.60	40
0860	Guide posts, remove only	B-80B	120	.267	Eo.		10	1.94	11.94	17.45
0870	Remove and reset	B-55	50	.480			16.75	19.65	36.40	47
0900	Hydrants, fire, remove only	B-21A	5	8			350	89.50	439.50	630
0950	Remove and reset	"	2	20	▼		875	224	1,099	1,575
1000	Masonry walls, block, solid	B-5	1800	.031	C.F.		1.20	.73	1.93	2.64
1200	Brick, solid		900	.062			2.41	1.46	3.87	5.30
1400	Stone, with mortar		900	.062			2.41	1.46	3.87	5.30
1500	Dry set	▼	1500	.037	▼		1.44	.88	2.32	3.17
1600	Median barrier, precast concrete, remove and store	B-3	430	.112	L.F.		4.18	5.30	9.48	12.15
1610	Remove and reset	"	390	.123			4.60	5.85	10.45	13.45
2900	Pipe removal, sewer/water, no excavation, 12" diameter	B-6	175	.137			5.25	1.91	7.16	10.15
2930	15"-18" diameter	B-12Z	150	.160			6.30	11	17.30	21.50
2960	21"-24" diameter		120	.200			7.85	13.75	21.60	27
3000	27"-36" diameter	▼	90	.267			10.50	18.35	28.85	36
3200	Steel, welded connections, 4" diameter	B-6	160	.150			5.75	2.09	7.84	11.10
3300	10" diameter	"	80	.300			11.50	4.18	15.68	22
3500	Railroad track removal, ties and track	B-13	330	.170	▼		6.45	2.11	8.56	12.20
3600	Ballast	B-14	500	.096	C.Y.		3.56	.67	4.23	6.20
3700	Remove and re-install, ties & track using new bolts & spikes		50	.960	L.F.		35.50	6.70	42.20	62
3800	Turnouts using new bolts and spikes	▼	1	48	Eo.		1,775	335	2,110	3,100
4000	Sidewalk removal, bituminous, 2-1/2" thick	B-6	325	.074	S.Y.		2.83	1.03	3.86	5.45
4050	Brick, set in mortar		185	.130			4.97	1.81	6.78	9.60
4100	Concrete, plain, 4"		160	.150			5.75	2.09	7.84	11.10
4200	Mesh reinforced	▼	150	.160			6.15	2.23	8.38	11.80
4300	Slab on grade removal, plain	B-5	45	1.244	C.Y.		48	29	77	106
4310	Mesh reinforced		33	1.697			65.50	40	105.50	144
4320	Rad reinforced	▼	25	2.240			86.50	52.50	139	190
4400	For congested sites or small quantities, add up to								200%	200%
4450	For disposal on site, add	B-11A	232	.069			2.82	5.35	8.17	10.20
4500	To 5 miles, add	B-34D	76	.105	▼		3.72	8.70	12.42	15.20

02 41 13.60 Selective Demolition Fencing

0010	SELECTIVE DEMOLITION FENCING	R024119-10								
1600	Fencing, barbed wire, 3 strand	2 Clob	430	.037	L.F.		1.31		1.31	2.01
1650	5 strand	"	280	.057			2.01		2.01	3.09
1700	Chain link, posts & fabric, 8' to 10' high, remove only	B-6	445	.054			2.07	.75	2.82	3.99
1750	Remove and reset	"	70	.343	▼		13.15	4.77	17.92	25.50

02 41 16 - Structure Demolition

02 41 16.13 Building Demolition

0010	BUILDING DEMOLITION Large urban projects, incl. 20 mi. haul	R024119-10								
0011	No foundation or dump fees, C.F. is vol. of building standing									
0020	Steel	B-8	21500	.003	C.F.		.12	.14	.26	.33
0050	Concrete		15300	.004			.16	.19	.35	.46
0080	Masonry		20100	.003			.12	.15	.27	.35
0100	Mixture of types	▼	20100	.003			.12	.15	.27	.35
0500	Small bldgs, or single bldgs, no solvage included, steel	B-3	14800	.003			.12	.15	.27	.35
0600	Concrete		11300	.004			.16	.20	.36	.46
0650	Masonry		14800	.003			.12	.15	.27	.35
0700	Wood	▼	14800	.003			.12	.15	.27	.35
0750	For buildings with no interior walls, deduct								50%	
1000	Demolition single family house, one story, wood 1600 S.F.	B-3	1	48	Eo.		1,800	2,275	4,075	5,250

02 41 Demolition

02 41 16 – Structure Demolition

02 41 16.13 Building Demolition		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs			Total Incl O&P
							Labor	Equipment	Total	
1020	3200 S.F.	B-3	.50	96	Eo.		3,600	4,550	8,150	10,500
1200	Demolition two family house, two story, wood 2400 S.F.		.67	71.964			2,700	3,400	6,100	7,850
1220	4200 S.F.		.38	128			4,800	6,075	10,875	14,000
1300	Demolition three family house, three story, wood 3200 S.F.		.50	96			3,600	4,550	8,150	10,500
1320	5400 S.F.		.30	160			5,975	7,575	13,550	17,500
5000	For buildings with no interior walls, deduct								50%	

02 41 16.15 Explosive/Implosive Demolition

0010	EXPLOSIVE/IMPLOSIVE DEMOLITION	R024119-10								
0011	Large projects,									
0020	No disposal fee based on building volume, steel building	B-5B	16900	.003	C.F.		.12	.15	.27	.34
0100	Concrete building		16900	.003			.12	.15	.27	.34
0200	Masonry building		16900	.003			.12	.15	.27	.34
0400	Disposal of material, minimum	B-3	445	.108	C.Y.		4.04	5.10	9.14	11.75
0500	Maximum	"	365	.132	"		4.92	6.25	11.17	14.35

02 41 16.17 Building Demolition Footings and Foundations

0010	BUILDING DEMOLITION FOOTINGS AND FOUNDATIONS	R024119-10								
0200	Floors, concrete slab on grade,									
0240	4" thick, plain concrete	B-9	500	.080	S.F.		2.84	.42	3.26	4.83
0280	Reinforced, wire mesh		470	.085			3.02	.45	3.47	5.15
0300	Rods		400	.100			3.55	.52	4.07	6.05
0400	6" thick, plain concrete		375	.107			3.79	.56	4.35	6.45
0420	Reinforced, wire mesh		340	.118			4.18	.62	4.80	7.15
0440	Rods		300	.133			4.73	.70	5.43	8.05
1000	Footings, concrete, 1' thick, 2' wide	B-5	300	.187	L.F.		7.20	4.38	11.58	15.85
1080	1'-6" thick, 2' wide		250	.224			8.65	5.25	13.90	19.05
1120	3' wide		200	.280			10.80	6.60	17.40	24
1140	2' thick, 3' wide		175	.320			12.35	7.50	19.85	27
1200	Average reinforcing, odd								10%	10%
1220	Heavy reinforcing, odd								20%	20%
2000	Walls, block, 4" thick	1 Clob	180	.044	S.F.		1.56		1.56	2.40
2040	6" thick		170	.047			1.65		1.65	2.54
2080	8" thick		150	.053			1.87		1.87	2.88
2100	12" thick		150	.053			1.87		1.87	2.88
2200	For horizontal reinforcing, odd								10%	10%
2220	For vertical reinforcing, odd								20%	20%
2400	Concrete, plain concrete, 6" thick	B-9	160	.250			8.90	1.31	10.21	15.10
2420	8" thick		140	.286			10.15	1.49	11.64	17.25
2440	10" thick		120	.333			11.85	1.74	13.59	20
2500	12" thick		100	.400			14.20	2.09	16.29	24.50
2600	For overage reinforcing, odd								10%	10%
2620	For heavy reinforcing, odd								20%	20%
4000	For congested sites or small quantities, odd up to								200%	200%
4200	Add for disposal, on site	B-11A	232	.069	C.Y.		2.82	5.35	8.17	10.20
4250	To five miles	B-30	220	.109	"		4.26	9.70	13.96	17.10

02 41 19 – Selective Demolition

02 41 19.13 Selective Building Demolition

0010	SELECTIVE BUILDING DEMOLITION									
0020	Costs related to selective demolition of specific building components									
0025	are included under Common Work Results (XX 05)									
0030	in the component's appropriate division.									

02 41 Demolition

02 41 19 - Selective Demolition

02 41 19.16 Selective Demolition, Cutout

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
0010	SELECTIVE DEMOLITION, CUTOUT									
	R024119-10									
0020	Concrete, elev. slab, light reinforcement, under 6 C.F.	B-9	65	.615	C.F.		22	3.22	25.22	37
0050	Light reinforcing, over 6 C.F.		75	.533	"		18.95	2.79	21.74	32
0200	Slab on grade to 6" thick, not reinforced, under 8 S.F.		85	.471	S.F.		16.70	2.46	19.16	28
0250	8 - 16 S.F.	▼	175	.229	"		8.10	1.20	9.30	13.80
0255	For over 16 S.F. see Line 02 41 16.17 0400									
0600	Walls, not reinforced, under 6 C.F.	B-9	60	.667	C.F.		23.50	3.49	26.99	40.50
0650	6 - 12 C.F.	"	80	.500	"		17.75	2.62	20.37	30.50
0655	For over 12 C.F. see Line 02 41 16.17 2500									
1000	Concrete, elevated slab, bar reinforced, under 6 C.F.	B-9	45	.889	C.F.		31.50	4.65	36.15	53.50
1050	Bar reinforced, over 6 C.F.		50	.800	"		28.50	4.18	32.68	48
1200	Slab on grade to 6" thick, bar reinforced, under 8 S.F.		75	.533	S.F.		18.95	2.79	21.74	32
1250	8 - 16 S.F.	▼	150	.267	"		9.45	1.39	10.84	16.10
1255	For over 16 S.F. see Line 02 41 16.17 0440									
1400	Walls, bar reinforced, under 6 C.F.	B-9	50	.800	C.F.		28.50	4.18	32.68	48
1450	6 - 12 C.F.	"	70	.571	"		20.50	2.99	23.49	34.50
1455	For over 12 C.F. see Lines 02 41 16.17 2500 and 2600									
2000	Brick, to 4 S.F. opening, not including toothing									
2040	4" thick	B-9	30	1.333	Ea.		47.50	6.95	54.45	80.50
2060	8" thick		18	2.222			79	11.60	90.60	134
2080	12" thick		10	4			142	21	163	241
2400	Concrete block, to 4 S.F. opening, 2" thick		35	1.143			40.50	6	46.50	69
2420	4" thick		30	1.333			47.50	6.95	54.45	80.50
2440	8" thick		27	1.481			52.50	7.75	60.25	89.50
2460	12" thick		24	1.667			59	8.70	67.70	101
2600	Gypsum block, to 4 S.F. opening, 2" thick		80	.500			17.75	2.62	20.37	30.50
2620	4" thick		70	.571			20.50	2.99	23.49	34.50
2640	8" thick		55	.727			26	3.80	29.80	43.50
2800	Terra cotto, to 4 S.F. opening, 4" thick		70	.571			20.50	2.99	23.49	34.50
2840	8" thick		65	.615			22	3.22	25.22	37
2880	12" thick	▼	50	.800			28.50	4.18	32.68	48
3000	Toothing masonry cutouts, brick, soft old mortar	1 Brhe	40	.200	V.L.F.		7.10		7.10	10.75
3100	Hard mortar		30	.267			9.50		9.50	14.35
3200	Block, soft old mortar		70	.114			4.07		4.07	6.15
3400	Hard mortar	▼	50	.160			5.70		5.70	8.60
6000	Walls, interior, not including re-framing,									
6010	openings to 5 S.F.									
6100	Drywall to 5/8" thick	1 Clob	24	.333	Ea.		11.70		11.70	18
6200	Paneling to 3/4" thick		20	.400			14.05		14.05	21.50
6300	Plaster, on gypsum lath		20	.400			14.05		14.05	21.50
6340	On wire lath	▼	14	.571			20		20	31
7000	Wood frame, not including re-framing, openings to 5 S.F.									
7200	Floors, sheathing and flooring to 2" thick	1 Clob	5	1.600	Ea.		56		56	86.50
7310	Roofs, sheathing to 1" thick, not including roofing		6	1.333			47		47	72
7410	Walls, sheathing to 1" thick, not including siding	▼	7	1.143			40		40	61.50

02 41 19.18 Selective Demolition, Disposal Only

0010	SELECTIVE DEMOLITION, DISPOSAL ONLY									
	R024119-10									
0015	Urban bldg w/solvoage value allowed									
0020	Including loading and 5 mile haul to dump									
0200	Steel frame	B-3	430	.112	C.Y.		4.18	5.30	9.48	12.15
0300	Concrete frame		365	.132			4.92	6.25	11.17	14.35
0400	Masonry construction	▼	445	.108			4.04	5.10	9.14	11.75

02 41 Demolition

02 41 19 – Selective Demolition

		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
02 41 19.18 Selective Demolition, Disposal Only		B-3	247	.194	C.Y.		Labor	Equipment		
0500	Wood frame						7.25	9.20	16.45	21.50
02 41 19.19 Selective Facility Services Demolition										
0010	SELECTIVE FACILITY SERVICES DEMOLITION, Rubbish Handling									
0020	The following are to be added to the demolition prices									
0400	Chute, circular, prefabricated steel, 18" diameter	B-1	40	.600	L.F.	52	21.50		73.50	90.50
0440	30" diameter	"	30	.800	"	46.50	28.50		75	95
0600	Dumpster, weekly rental, 1 dump/week, 6 C.Y. capacity (2 Tons)				Week	460			460	505
0700	10 C.Y. capacity (3 Tons)					535			535	590
0725	20 C.Y. capacity (8 Tons)					630			630	695
0800	30 C.Y. capacity (7 Tons)					810			810	890
0840	40 C.Y. capacity (10 Tons)					860			860	945
2000	Load, haul, dump and return, 50' haul, hand carried	2 Clab	24	.667	C.Y.		23.50		23.50	36
2005	Wheeled		37	.432			15.20		15.20	23.50
2040	51' to 100' haul, hand carried		16.50	.970			34		34	52.50
2045	Wheeled		25	.640			22.50		22.50	34.50
2080	Over 100' haul, add per 100 L.F., hand carried		35.50	.451			15.80		15.80	24.50
2085	Wheeled		54	.296			10.40		10.40	16
2120	In elevators, per 10 floors, add		140	.114			4.01		4.01	6.15
2130	Load, haul, dump and return, up to 50' haul, incl. up to 5 riser stair, hand		23	.696			24.50		24.50	37.50
2135	Wheeled		35	.457			16.05		16.05	24.50
2140	6 – 10 riser stairs, hand carried		22	.727			25.50		25.50	39.50
2145	Wheeled		34	.471			16.50		16.50	25.50
2150	11 – 20 riser stairs, hand carried		20	.800			28		28	43
2155	Wheeled		31	.516			18.10		18.10	28
2160	21 – 40 riser stairs, hand carried		16	1			35		35	54
2165	Wheeled		24	.667			23.50		23.50	36
2170	100' haul, incl. 5 riser stair, hand carried		15	1.067			37.50		37.50	57.50
2175	Wheeled		23	.696			24.50		24.50	37.50
2180	6 – 10 riser stair, hand carried		14	1.143			40		40	61.50
2185	Wheeled		21	.762			26.50		26.50	41
2190	11 – 20 riser stair, hand carried		12	1.333			47		47	72
2195	Wheeled		18	.889			31		31	48
2200	21 – 40 riser stair, hand carried		8	2			70		70	108
2205	Wheeled		12	1.333			47		47	72
2210	Over 100' haul, add per 100 L.F., hand carried		35.50	.451			15.80		15.80	24.50
2215	Wheeled		54	.296			10.40		10.40	16
2220	For each additional flight of stairs, up to 5 risers, add		550	.029	Flight		1.02		1.02	1.57
2225	6 – 10 risers, add		275	.058			2.04		2.04	3.14
2230	11 – 20 risers, add		138	.116			4.07		4.07	6.25
2235	21 – 40 risers, add		69	.232			8.15		8.15	12.50
3000	Loading & trucking, including 2 mile haul, chute loaded	B-16	45	.711	C.Y.		25.50	13	38.50	53.50
3040	Hand loading truck, 50' haul	"	48	.667			24	12.20	36.20	50
3080	Machine loading truck	B-17	120	.267			10	5.75	15.75	21.50
5000	Haul, per mile, up to 8 C.Y. truck	B-34B	1165	.007			.24	.50	.74	.92
5100	Over 8 C.Y. truck	"	1550	.005			.18	.38	.56	.69

02 41 19.20 Selective Demolition, Dump Charges

0010	SELECTIVE DEMOLITION, DUMP CHARGES									
0020	Dump charges, typical urban city, tipping fees only									
0100	Building construction materials				Ton	82			82	90
0200	Trees, brush, lumber					70			70	77
0300	Rubbish only					70			70	77
0500	Reclamation station, usual charge					82			82	90

02 41 Demolition

02 41 19 – Selective Demolition

02 41 19.21 Selective Demolition, Gutting		Daily Crew	Labor- Output	Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0010	SELECTIVE DEMOLITION, GUTTING									
0020	Building interior, including disposal, dumpster fees not included									
0500	Residential building									
0560	Minimum	B-16	400	.080	SF Flr.		2.85	1.46	4.31	6
0580	Maximum	"	360	.089	"		3.17	1.62	4.79	6.65
0900	Commercial building									
1000	Minimum	B-16	350	.091	SF Flr.		3.26	1.67	4.93	6.85
1020	Maximum	"	250	.128	"		4.56	2.34	6.90	9.55

02 41 19.25 Selective Demolition, Saw Cutting

0010	SELECTIVE DEMOLITION, SAW CUTTING									
0015	Asphalt, up to 3" deep	B-89	1050	.015	L.F.	.34	.60	.41	1.35	1.73
0020	Each additional inch of depth	"	1800	.009		.11	.35	.24	.70	.91
1200	Masonry walls, hydraulic saw, brick, per inch of depth	B-89B	300	.053		.42	2.11	2.46	4.99	6.35
1220	Block walls, solid, per inch of depth	"	250	.064		.42	2.53	2.95	5.90	7.55
2000	Brick or masonry w/hand held saw, per inch of depth	A-1	125	.064		.34	2.25	.53	3.12	4.41
5000	Wood sheathing to 1" thick, on walls	1 Carp	200	.040			1.76		1.76	2.71
5020	On roof	"	250	.032			1.41		1.41	2.17

02 41 19.27 Selective Demolition, Torch Cutting

0010	SELECTIVE DEMOLITION, TORCH CUTTING									
0020	Steel, 1" thick plate	1 Clab	360	.022	L.F.	.37	.78		1.15	1.61
0040	1" diameter bar	"	210	.038	Eq.		1.34		1.34	2.06
1000	Oxygen lance cutting, reinforced concrete walls									
1040	12" to 16" thick walls	1 Clab	10	.800	L.F.		28		28	43
1080	24" thick walls	"	6	1.333	"		47		47	72

02 42 Removal and Salvage of Construction Materials

02 42 10 – Building Deconstruction

02 42 10.10 Estimated Salvage Value or Savings

0010	ESTIMATED SALVAGE VALUE OR SAVINGS									
0015	Excludes material handling, packaging, container costs and									
0020	transportation for salvage or disposal									
0050	All Items in Section 02 42 10.10 are credit deducts and not costs									
0100	Copper Wire Salvage Value	G			Lb.				1.30	1.30
0110	Disposal Savings	G							.03	.03
0200	Copper Pipe Salvage Value	G							1.34	1.34
0210	Disposal Savings	G							.03	.03
0300	Steel Pipe Salvage Value	G							.06	.06
0310	Disposal Savings	G							.03	.03
0400	Cast Iron Pipe Salvage Value	G							.06	.06
0410	Disposal Savings	G							.03	.03
0500	Steel Doors or Windows Salvage Value	G							.06	.06
0510	Aluminum	G							.66	.66
0520	Disposal Savings	G							.03	.03
0600	Aluminum Siding Salvage Value	G							.49	.49
0630	Disposal Savings	G							.03	.03
0640	Wood Siding (no lead or asbestos)	G			C.Y.				10.90	10.90
0800	Clean Concrete Disposal Savings	G			Ton				60	60
0850	Asphalt Shingles Disposal Savings	G			"				60	60
1000	Wood wall framing clean salvage value	G			M.B.F.				50	50
1010	Painted	G							40	40

02 42 Removal and Salvage of Construction Materials

02 42 10 – Building Deconstruction

02 42 10.10 Estimated Salvage Value or Savings				Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
									Labor	Equipment		
1020	Floor framing	G					M.B.F.				50	50
1030	Painted	G									40	40
1050	Roof framing	G									50	50
1060	Painted	G									40	40
1100	Wood beams salvage value	G									50	50
1200	Wood framing and beams disposal savings	G					Ton				60	60
1220	Wood sheathing and sub-base flooring	G									60	60
1230	Wood wall paneling (1/4 inch thick)	G									60	60
1300	Wood panel 3/4-1 inch thick low salvage value	G					S.F.				.50	.50
1350	high salvage value	G					"				2	2
1400	Disposal savings	G					Ton				60	60
1500	Flooring tongue and groove 25/32 inch thick low salvage value	G					S.F.				.50	.50
1530	High salvage value	G					"				1	1
1560	Disposal savings	G					Ton				60	60
1600	Drywall or sheet rock salvage value	G									20	20
1650	Disposal savings	G									60	60

02 42 10.20 Deconstruction of Building Components

0010	DECONSTRUCTION OF BUILDING COMPONENTS											
0012	Buildings one or two stories only											
0015	Excludes material handling, packaging, container costs and											
0020	transportation for salvage or disposal											
0050	Deconstruction of Plumbing Fixtures											
0100	Wall hung or countertop lavatory	G	2 Clob	16	1	Eq.			35		35	54
0110	Single or double compartment kitchen sink	G		14	1.143				40		40	61.50
0120	Wall hung urinal	G		14	1.143				40		40	61.50
0130	Floor mounted	G		8	2				70		70	108
0140	Floor mounted water closet	G		16	1				35		35	54
0150	Wall hung	G		14	1.143				40		40	61.50
0160	Water fountain, free standing	G		16	1				35		35	54
0170	Wall hung or deck mounted	G		12	1.333				47		47	72
0180	Bathtub, steel or fiberglass	G		10	1.600				56		56	86.50
0190	Cast iron	G		8	2				70		70	108
0200	Shower, single	G		6	2.667				93.50		93.50	144
0210	Group	G		7	2.286				80		80	123
0300	Deconstruction of Electrical Fixtures											
0310	Surface mount incandescent fixtures	G	2 Clob	48	.333	Eq.			11.70		11.70	18
0320	Fluorescent, 2 lamp	G		32	.500				17.55		17.55	27
0330	4 lamp	G		24	.667				23.50		23.50	36
0340	Strip Fluorescent, 1 lamp	G		40	.400				14.05		14.05	21.50
0350	2 lamp	G		32	.500				17.55		17.55	27
0400	Recessed drop-in fluorescent fixture, 2 lamp	G		27	.593				21		21	32
0410	4 lamp	G		18	.889				31		31	48
0500	Deconstruction of appliances											
0510	Cooking stoves	G	2 Clob	26	.615	Eq.			21.50		21.50	33
0520	Dishwashers	G	"	26	.615	"			21.50		21.50	33
0600	Deconstruction of millwork and trim											
0610	Cabinets, wood	G	2 Carp	40	.400	L.F.			17.65		17.65	27
0620	Countertops	G		100	.160	"			7.05		7.05	10.85
0630	Wall paneling, 1 inch thick	G		500	.032	S.F.			1.41		1.41	2.17
0640	Ceiling trim	G		500	.032	L.F.			1.41		1.41	2.17
0650	Wainscoting	G		500	.032	S.F.			1.41		1.41	2.17
0660	Base, 3/4" to 1" thick	G		600	.027	L.F.			1.18		1.18	1.81

02 42 Removal and Salvage of Construction Materials

02 42 10 – Building Deconstruction

02 42 10.20 Deconstruction of Building Components		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0700	Deconstruction of doors and windows									
0710	Doors, wrap, interior, wood, single, no closers	G	2 Corp	21	.762	Ea.	5.75	33.50	39.25	58
0720	Double	G		13	1.231		11.50	54.50	66	96
0730	Solid core, single, exterior or interior	G		10	1.600		5.75	70.50	76.25	115
0740	Double	G		8	2		11.50	88	99.50	149
0810	Windows, wrap, wood, single	G		21	.762		5.75	33.50	39.25	58
0812	with no casement or cladding	G								
0820	with casement and/or cladding	G	2 Corp	18	.889	Ea.	5.75	39	44.75	67
0900	Deconstruction of interior finishes									
0910	Drywall for recycling	G	2 Clob	1775	.009	S.F.		.32	.32	.49
0920	Plaster wall, first floor	G		1775	.009			.32	.32	.49
0930	Second floor	G		1330	.012			.42	.42	.65
1000	Deconstruction of roofing and accessories									
1010	Built-up roofs	G	2 Clob	570	.028	S.F.	.99		.99	1.52
1020	Gutters, fascia and rakes	G	"	1140	.014	L.F.	.49		.49	.76
2000	Deconstruction of wood components									
2010	Roof sheeting	G	2 Clob	570	.028	S.F.	.99		.99	1.52
2020	Main roof framing	G		760	.021	L.F.	.74		.74	1.14
2030	Porch roof framing	G		445	.036		1.26		1.26	1.94
2040	Beams 4" x 8"	G	B-1	375	.064		2.29		2.29	3.52
2050	4" x 10"	G		300	.080		2.86		2.86	4.40
2055	4" x 12"	G		250	.096		3.43		3.43	5.30
2060	6" x 8"	G		250	.096		3.43		3.43	5.30
2065	6" x 10"	G		200	.120		4.29		4.29	6.60
2070	6" x 12"	G		170	.141		5.05		5.05	7.75
2075	8" x 12"	G		126	.190		6.80		6.80	10.50
2080	10" x 12"	G		100	.240		8.60		8.60	13.20
2100	Ceiling joists	G	2 Clob	800	.020		.70		.70	1.08
2150	Wall framing, interior	G		1230	.013		.46		.46	.70
2160	Sub-floor	G		2000	.008	S.F.	.28		.28	.43
2170	Floor joists	G		2000	.008	L.F.	.28		.28	.43
2200	Wood siding (no lead or asbestos)	G		1300	.012	S.F.	.43		.43	.66
2300	Wall framing, exterior	G		1600	.010	L.F.	.35		.35	.54
2400	Stair risers	G		53	.302	Ea.	10.60		10.60	16.30
2500	Posts	G		800	.020	L.F.	.70		.70	1.08
3000	Deconstruction of exterior brick walls									
3010	Exterior brick walls, first floor	G	2 Clob	200	.080	S.F.	2.81		2.81	4.32
3020	Second floor	G		64	.250	"	8.80		8.80	13.50
3030	Brick chimney	G		100	.160	C.F.	5.60		5.60	8.65
4000	Deconstruction of concrete									
4010	Slab on grade, 4" thick, plain concrete	G	B-9	500	.080	S.F.	2.84	.42	3.26	4.83
4020	Wire mesh reinforced	G		470	.085		3.02	.45	3.47	5.15
4030	Rod reinforced	G		400	.100		3.55	.52	4.07	6.05
4110	Foundation wall, 6" thick, plain concrete	G		160	.250		8.90	1.31	10.21	15.10
4120	8" thick	G		140	.286		10.15	1.49	11.64	17.25
4130	10" thick	G		120	.333		11.85	1.74	13.59	20
9000	Deconstruction process, support equipment as needed									
9010	Daily use, portal to portal, 12-ton truck-mounted hydraulic crane crew	G	A-3H	1	8	Day	380	825	1,205	1,475
9020	Daily use, skid steer and operator	G	A-3C	1	8		360	281	641	850
9030	Daily use, backhoe 48 H. P., operator and labor	G	"	1	8		360	281	641	850

02 42 Removal and Salvage of Construction Materials

02 42 10 – Building Deconstruction

02 42 10.30 Deconstruction Material Handling		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0010	DECONSTRUCTION MATERIAL HANDLING									
0012	Buildings one or two stories only									
0100	Clean and stock brick on pallet	G	2 Clob	1200	.013	Eq.	.47		.47	.72
0200	Haul 50' and load rough lumber up to 2" x 8" size	G		2000	.008	"	.28		.28	.43
0210	Lumber longer than 2" x 8"	G		3200	.005	B.F.	.18		.18	.27
0300	Finish wood for recycling stock and wrap per pallet	G		8	2	Eq.	70		116	159
0350	Light fixtures			6	2.667		83	93.50	176.50	235
0375	Windows			6	2.667		78	93.50	171.50	230
0400	Miscellaneous materials			8	2		23	70	93	134
1000	See Section 02 41 19.19 for bulk material handling									

02 43 Structure Moving

02 43 13 – Structure Relocation

02 43 13.13 Building Relocation

0010	BUILDING RELOCATION									
0011	One day move, up to 24' wide									
0020	Reset on new foundation, patch & hook-up, average move				Total					11,200
0040	Wood or steel frame bldg., based on ground floor area	G	B-4	185	.259	S.F.	9.20	2.50	11.70	16.90
0060	Masonry bldg., based on ground floor area	G	"	137	.350		12.45	3.37	15.82	23
0200	For 24' to 42' wide, add									15%
0220	For each additional day on road, add	G	B-4	1	48	Day	1,700	460	2,160	3,125
0240	Construct new basement, move building, 1 day									
0300	move, patch & hook-up, based on ground floor area	G	B-3	155	.310	S.F.	9.20	11.60	14.70	35.50
										44

02 56 Site Containment

02 56 13 – Waste Containment

02 56 13.10 Containment of Hazardous Waste

0010	CONTAINMENT OF HAZARDOUS WASTE									
0020	OSHA hazard level C									
0030	OSHA Hazard level D decrease labor and equipment, deduct						-45%	-45%		
0035	OSHA Hazard level B increase labor and equipment, add						22%	22%		
0040	OSHA Hazard level A increase labor and equipment, add						71%	71%		
0100	Excavation of contaminated soil & waste									
0105	Includes one respirator filter and two disposable suits per work day									
0110	3/4 C.Y. excavator to 10 feet deep	B-12F	51	.314	B.C.Y.	1.67	13	12.70	27.37	35.50
0120	Labor crew to 6' deep	B-2	19	2.105		11.20	74.50		85.70	127
0130	6' - 12' deep	"	12	3.333		17.75	118		135.75	202
0200	Move contaminated soil/waste upto 150' on-site with 2.5 C.Y. loader	B-10T	300	.040	L.C.Y.	.28	1.71	1.57	3.56	4.63
0210	300'	"	186	.065	"	.46	2.76	2.54	5.76	7.45
0300	Secure burial cell construction									
0310	Various liner and cover materials									
0400	Very low density polyethylene (VLDPE)									
0410	50 mil top cover	B-47H	4000	.008	S.F.	.39	.37	.07	.83	1.07
0420	80 mil liner	"	4000	.008	"	.39	.37	.07	.83	1.07
0500	Chlorosulfonated polyethylene									
0510	36 mil hypalon top cover	B-47H	4000	.008	S.F.	1.21	.37	.07	1.65	1.97
0520	45 mil hypalon liner	"	4000	.008	"	1.27	.37	.07	1.71	2.04
0600	Polyvinyl chloride (PVC)									
0610	60 mil top cover	B-47H	4000	.008	S.F.	.67	.37	.07	1.11	1.38

02 56 Site Containment

02 56 13 – Waste Containment

02 56 13.10 Containment of Hazardous Waste		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0620	80 mil liner	B-47H	4000	.008	S.F.	.79	.37	.07	1.23	1.51
0700	Rough textured H.D. polyethylene (HDPE)									
0710	40 mil top cover	B-47H	4000	.008	S.F.	.39	.37	.07	.83	1.07
0720	60 mil top cover		4000	.008		.41	.37	.07	.85	1.09
0722	60 mil liner		4000	.008		.37	.37	.07	.81	1.05
0730	80 mil liner		3800	.008		.44	.39	.07	.90	1.16
1000	3/4" crushed stone, 6" deep ballast around liner	B-6	30	.800	L.C.Y.	31.50	30.50	11.15	73.15	94
1100	Hazardous waste, ballast cover with common borrow material	B-63	56	.714		14.50	26.50	2.85	43.85	59.50
1110	Mixture of common borrow & topsoil		56	.714		18.75	26.50	2.85	48.10	64
1120	Bank sand		56	.714		17	26.50	2.85	46.35	62.50
1130	Medium priced clay		44	.909		23	33.50	3.63	60.13	81
1140	Mixture of common borrow & medium priced clay		56	.714		18.75	26.50	2.85	48.10	64

02 58 Snow Control

02 58 13 – Snow Fencing

02 58 13.10 Snow Fencing System

0010 SNOW FENCING SYSTEM										
7001	Snow fence on steel posts 10' O.C., 4' high	B-1	500	.048	L.F.	1.09	1.72		2.81	3.84

02 65 Underground Storage Tank Removal

02 65 10 – Underground Tank and Contaminated Soil Removal

02 65 10.30 Removal of Underground Storage Tanks

0010 REMOVAL OF UNDERGROUND STORAGE TANKS		R026510-20								
0011	Petroleum storage tanks, non-leaking									
0100	Excavate & load onto trailer									
0110	3000 gal. to 5000 gal. tank	G	B-14	4	12	Eq.	445	83.50	528.50	770
0120	6000 gal. to 8000 gal. tank	G	B-3A	3	13.333		500	320	820	1,125
0130	9000 gal. to 12000 gal. tank	G	"	2	20		750	480	1,230	1,675
0190	Known leaking tank, odd					%			100%	100%
0200	Remove sludge, water and remaining product from tank bottom									
0201	of tank with vacuum truck									
0300	3000 gal. to 5000 gal. tank	G	A-13	5	1.600	Eq.	71.50	147	218.50	270
0310	6000 gal. to 8000 gal. tank	G		4	2		89.50	184	273.50	335
0320	9000 gal. to 12000 gal. tank	G		3	2.667		119	245	364	450
0390	Dispose of sludge off-site, overage					Gal.			6	6.60
0400	Insert inert solid CO ₂ "dry ice" into tank									
0401	For cleaning/transporting tanks (1.5 lb./100 gal. cop)	G	1 Clob	500	.016	Lb.	.94	.56	1.50	1.89
0403	Insert solid carbon dioxide, 1.5 lb./100 gal.	G	"	400	.020	"	.94	.70	1.64	2.11
0503	Disconnect and remove piping	G	1 Plum	160	.050	L.F.		2.73	2.73	4.12
0603	Transfer liquids, 10% of volume	G	"	1600	.005	Gal.		.27	.27	.41
0703	Cut accessway into underground storage tank	G	1 Clob	5.33	1.501	Eq.		52.50	52.50	81
0813	Remove sludge, wash and wipe tank, 500 gal.	G	1 Plum	8	1			54.50	54.50	82.50
0823	3,000 gal.	G		6.67	1.199			65.50	65.50	99
0833	5,000 gal.	G		6.15	1.301			71	71	107
0843	8,000 gal.	G		5.33	1.501			82	82	124
0853	10,000 gal.	G		4.57	1.751			95.50	95.50	144
0863	12,000 gal.	G		4.21	1.900			104	104	156
1020	Haul tank to certified solvege dump, 100 miles round trip									
1023	3000 gal. to 5000 gal. tank					Eq.			745	820

02 65 Underground Storage Tank Removal

02 65 10 – Underground Tank and Contaminated Soil Removal

02 65 10.30 Removal of Underground Storage Tanks				Daily Crew	Labor- Output	Hours	Unit	Material	2012 Bare Costs		Total	Total Inc O&P
									Labor	Equipment		
1026	6000 gal. to 8000 gal. tank						Eo.				850	9,350
1029	9,000 gal. to 12,000 gal. tank						▼				1,000	1,100
1100	Disposal of contaminated soil to landfill											
1110	Minimum						C.Y.				125	140
1111	Maximum						"				400	440
1120	Disposal of contaminated soil to											
1121	bituminous concrete batch plant											
1130	Minimum						C.Y.				70	77
1131	Maximum						"				110	120
1203	Excavate, pull, & load tank, backfill hole, 8,000 gal. +	G	B-12C	.50	32		Eo.		1,325	2,500	3,825	4,775
1213	Haul tank to certified dump, 100 miles rt, 8,000 gal. +	G	B-34K	1	8				282	850	1,132	1,375
1223	Excavate, pull, & load tank, backfill hole, 500 gal.	G	B-11C	1	16				655	335	990	1,350
1233	Excavate, pull, & load tank, backfill hole, 3,000 – 5,000 gal.	G	B-11M	.50	32				1,300	730	2,030	2,800
1243	Haul tank to certified dump, 100 miles rt, 500 gal.	G	B-34L	1	8		▼		360	211	571	770
2010	Decontamination of soil on site incl poly tarp on top/bottom											
2011	Soil containment berm, and chemical treatment											
2020	Minimum	G	B-11C	100	.160		C.Y.	7.10	6.55	3.34	16.99	21.50
2021	Maximum	G	"	100	.160			9.20	6.55	3.34	19.09	23.50
2050	Disposal of decontaminated soil, minimum										125	140
2055	Maximum						▼				400	440

02 81 Transportation and Disposal of Hazardous Materials

02 81 20 – Hazardous Waste Handling

02 81 20.10 Hazardous Waste Cleanup/Pickup/Disposal

0010	HAZARDOUS WASTE CLEANUP/PICKUP/DISPOSAL											
0100	For contractor rental equipment, i.e., Dozer,											
0110	Front end loader, Dump truck, etc., see 01 54 33 Reference Section											
1000	Solid pickup											
1100	55 gal. drums						Eo.				225	250
1120	Bulk material, minimum						Ton				170	190
1130	Maximum						"				575	635
1200	Transportation to disposal site											
1220	Truckload = 80 drums or 25 C.Y. or 18 tons											
1260	Minimum						Mile				3.85	4.25
1270	Maximum						"				7	7.10
3000	Liquid pickup, vacuum truck, stainless steel tank											
3100	Minimum charge, 4 hours											
3110	1 compartment, 2200 gallon						Hr.				125	140
3120	2 compartment, 5000 gallon						"				180	200
3400	Transportation in 6900 gallon bulk truck						Mile				7.70	8.50
3410	In teflon lined truck						"				9.90	10.90
5000	Heavy sludge or dry vacuumable material						Hr.				125	140
6000	Dumpsite disposal charge, minimum						Ton				125	140
6020	Maximum						"				400	440

02 82 Asbestos Remediation

02 82 13 - Asbestos Abatement

02 82 13.39 Asbestos Remediation Plans and Methods		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
0010 ASBESTOS REMEDIATION PLANS AND METHODS							Labor	Equipment		
0100	Building Survey-Commercial Building				Ea.				2,000	2,200
0200	Asbestos Abatement Remediation Plan				"				1,200	1,325

02 82 13.41 Asbestos Abatement Equip.

0010	ASBESTOS ABATEMENT EQUIP.	R028213-20								
0011	Equipment and supplies, buy									
0200	Air filtration device, 2000 CFM				Ea.	885			885	975
0250	Large volume air sampling pump, minimum					365			365	400
0260	Maximum					530			530	585
0300	Airless sprayer unit, 2 gun					4,900			4,900	5,400
0350	Light stand, 500 watt				▼	46.50			46.50	51.50
0400	Personal respirators									
0410	Negative pressure, 1/2 face, dual operation, min.				Ea.	26			26	28.50
0420	Maximum					32.50			32.50	35.50
0450	P.A.P.R., full face, minimum					109			109	120
0460	Maximum					199			199	219
0470	Supplied air, full face, incl. air line, minimum					191			191	210
0480	Maximum					395			395	435
0500	Personnel sampling pump					226			226	248
1500	Power panel, 20 unit, incl. G.F.I.					565			565	620
1600	Shower unit, including pump and filters					1,200			1,200	1,300
1700	Supplied air system (type C)					5,425			5,425	5,975
1750	Vacuum cleaner, HEPA, 16 gal., stainless steel, wet/dry					1,200			1,200	1,325
1760	55 gallon					1,950			1,950	2,150
1800	Vacuum loader, 9 - 18 ton/hr.					92,000			92,000	101,000
1900	Water atomizer unit, including 55 gal. drum					235			235	258
2000	Worker protection, whole body, foot, head cover & gloves, plastic					8.90			8.90	9.80
2500	Respirator, single use					29.50			29.50	32.50
2550	Cartridge for respirator					7			7	7.70
2570	Glove bag, 7 mil, 50" x 64"					17.60			17.60	19.35
2580	10 mil, 44" x 60"					5.50			5.50	6.05
2590	6 mil, 44" x 60"					5.50			5.50	6.05
3000	HEPA vacuum for work area, minimum					1,400			1,400	1,525
3050	Maximum					1,475			1,475	1,600
6000	Disposable polyethylene bags, 6 mil, 3 C.F.					2.35			2.35	2.59
6300	Disposable fiber drums, 3 C.F.					17.25			17.25	19
6400	Pressure sensitive caution labels, 3" x 5"					3.22			3.22	3.54
6450	11" x 17"					7.15			7.15	7.90
6500	Negative air machine, 1800 CFM				▼	820			820	905

02 82 13.42 Preparation of Asbestos Containment Area

0010	PREPARATION OF ASBESTOS CONTAINMENT AREA									
0100	Pre-cleaning, HEPA vacuum and wet wipe, flat surfaces	A-9	12000	.005	S.F.	.02	.26		.28	.43
0200	Protect carpeted area, 2 layers 6 mil poly on 3/4" plywood	"	1000	.064		2	3.13		5.13	7.10
0300	Separation barrier, 2" x 4" @ 16", 1/2" plywood ea. side, 8' high	2 Corp	400	.040		3	1.76		4.76	6
0310	12' high		320	.050		3	2.21		5.21	6.70
0320	16' high		200	.080		2	3.53		5.53	7.65
0400	Personnel decontam. chamber, 2" x 4" @ 16", 3/4" ply ea. side		280	.057		4	2.52		6.52	8.30
0450	Waste decontam. chamber, 2" x 4" studs @ 16", 3/4" ply ea. side	▼	360	.044	▼	4	1.96		5.96	7.40
0500	Cover surfaces with polyethylene sheeting									
0501	Including glue and tape									
0550	Floors, each layer, 6 mil	A-9	8000	.008	S.F.	.05	.39		.44	.66
0551	4 mil		9000	.007		.03	.35		.38	.58

02 82 Asbestos Remediation

02 82 13 – Asbestos Abatement

02 82 13.42 Preparation of Asbestos Containment Area		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
0560	Walls, each layer, 6 mil	A-9	6000	.011	S.F.	.05	.52		.57	.86
0561	4 mil	↓	7000	.009	↓	.03	.45		.48	.74
0570	For heights above 12', add						20%			
0575	For heights above 20', add						30%			
0580	For fire retardant poly, add					100%				
0590	For large open areas, deduct					10%	20%			
0600	Seal floor penetrations with foam firestop to 36 sq. in.	2 Carp	200	.080	Ea.	7.60	3.53		11.13	13.85
0610	36 sq. in. to 72 sq. in.		125	.128		15.25	5.65		20.90	25.50
0615	72 sq. in. to 144 sq. in.		80	.200		30.50	8.80		39.30	47
0620	Wall penetrations, to 36 square inches		180	.089		7.60	3.92		11.52	14.45
0630	36 sq. in. to 72 sq. in.		100	.160		15.25	7.05		22.30	27.50
0640	72 sq. in. to 144 sq. in.	↓	60	.267	↓	30.50	11.75		42.25	51.50
0800	Caulk seams with latex	1 Carp	230	.035	L.F.	.15	1.53		1.68	2.53
0900	Set up neg. air machine, 1-2k CFM/25 M.C.F. volume	1 Asbe	4.30	1.860	Ea.		91		91	142

02 82 13.43 Bulk Asbestos Removal

0010	BULK ASBESTOS REMOVAL									
0020	Includes disposable tools and 2 suits and 1 respirator filter/day/worker									
0100	Beams, W 10 x 19	A-9	235	.272	L.F.	.84	13.30		14.14	22
0110	W 12 x 22		210	.305		.94	14.90		15.84	24
0120	W 14 x 26		180	.356		1.10	17.40		18.50	28
0130	W 16 x 31		160	.400		1.24	19.55		20.79	32
0140	W 18 x 40		140	.457		1.42	22.50		23.92	36.50
0150	W 24 x 55		110	.582		1.80	28.50		30.30	46.50
0160	W 30 x 108		85	.753		2.33	37		39.33	60
0170	W 36 x 150		72	.889	↓	2.75	43.50		46.25	70.50
0200	Boiler insulation	↓	480	.133	S.F.	.48	6.50		6.98	10.70
0210	With metal lath, add				%				50%	
0300	Boiler breaching or flue insulation	A-9	520	.123	S.F.	.38	6		6.38	9.80
0310	For active boiler, add				%				100%	
0400	Duct or AHU insulation	A-10B	440	.073	S.F.	.23	3.56		3.79	5.80
0500	Duct vibration isolation joints, up to 24 sq. in. duct	A-9	56	1.143	Ea.	3.54	56		59.54	91
0520	25 sq. in. to 48 sq. in. duct		48	1.333		4.13	65		69.13	107
0530	49 sq. in. to 76 sq. in. duct		40	1.600	↓	4.96	78.50		83.46	127
0600	Pipe insulation, air cell type, up to 4" diameter pipe		900	.071	L.F.	.22	3.48		3.70	5.65
0610	4" to 8" diameter pipe		800	.080		.25	3.91		4.16	6.35
0620	10" to 12" diameter pipe		700	.091		.28	4.47		4.75	7.25
0630	14" to 16" diameter pipe		550	.116	↓	.36	5.70		6.06	9.25
0650	Over 16" diameter pipe		650	.098	S.F.	.31	4.82		5.13	7.85
0700	With glove bag up to 3" diameter pipe		200	.320	L.F.	6.05	15.65		21.70	31
1000	Pipe fitting insulation up to 4" diameter pipe		320	.200	Ea.	.62	9.80		10.42	15.95
1100	6" to 8" diameter pipe		304	.211		.65	10.30		10.95	16.75
1110	10" to 12" diameter pipe		192	.333		1.03	16.30		17.33	26.50
1120	14" to 16" diameter pipe		128	.500	↓	1.55	24.50		26.05	39.50
1130	Over 16" diameter pipe		176	.364	S.F.	1.13	17.80		18.93	28.50
1200	With glove bag, up to 8" diameter pipe		75	.853	L.F.	6.55	41.50		48.05	72
2000	Scrape foam fireproofing from flat surface		2400	.027	S.F.	.08	1.30		1.38	2.12
2100	Irregular surfaces		1200	.053		.17	2.61		2.78	4.24
3000	Remove cementitious material from flat surface		1800	.036		.11	1.74		1.85	2.83
3100	Irregular surface		1000	.064		.14	3.13		3.27	5.05
4000	Scrape acoustical coating/fireproofing, from ceiling		3200	.020		.06	.98		1.04	1.59
5000	Remove VAT and mastic from floor by hand	↓	2400	.027		.08	1.30		1.38	2.12
5100	By machine	A-11	4800	.013	↓	.04	.65	.01	.70	1.08

02 82 Asbestos Remediation

02 82 13 - Asbestos Abatement

02 82 13.43 Bulk Asbestos Removal

		Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Inc O&P
5150	For 2 layers, add				%				50%	
6000	Remove contaminated soil from crawl space by hand	A-9	400	.160	C.F.	.50	7.85		8.35	12.75
6100	With large production vacuum loader	A-12	700	.091	"	.28	4.47	1.05	5.80	8.40
7000	Radiator backing, not including radiator removal	A-9	1200	.053	S.F.	.17	2.61		2.78	4.24
8000	Cement-asbestos transite board	2 Asbe	1000	.016		.14	.78		.92	1.37
8100	Transite shingle siding	A-10B	750	.043		.21	2.09		2.30	3.49
8200	Shingle roofing	"	2000	.016		.08	.78		.86	1.31
8250	Built-up, no gravel, non-friable	B-2	1400	.029		.08	1.01		1.09	1.65
8260	Bituminous flashing	1 Rofc	300	.027		.08	1		1.08	1.76
8300	Asbestos millboard	2 Asbe	1000	.016	▼	.08	.78		.86	1.31
9000	For type B (supplied air) respirator equipment, add				%					10%

02 82 13.44 Demolition In Asbestos Contaminated Area

0010	DEMOLITION IN ASBESTOS CONTAMINATED AREA									
0200	Ceiling, including suspension system, plaster and lath	A-9	2100	.030	S.F.	.09	1.49		1.58	2.42
0210	Finished plaster, leaving wire lath		585	.109		.34	5.35		5.69	8.70
0220	Suspended acoustical tile		3500	.018		.06	.89		.95	1.45
0230	Concealed tile grid system		3000	.021		.07	1.04		1.11	1.70
0240	Metal pan grid system		1500	.043		.13	2.09		2.22	3.40
0250	Gypsum board		2500	.026		.08	1.25		1.33	2.04
0260	Lighting fixtures up to 2' x 4'	▼	72	.889	Ea.	2.75	43.50		46.25	70.50
0400	Partitions, non load bearing									
0410	Plaster, lath, and studs	A-9	690	.093	S.F.	.86	4.54		5.40	8
0450	Gypsum board and studs	"	1390	.046	"	.14	2.25		2.39	3.67
9000	For type B (supplied air) respirator equipment, add				%					10%

02 82 13.45 OSHA Testing

0010	OSHA TESTING									
0100	Certified technician, minimum				Day				200	220
0110	Maximum								300	330
0120	Industrial hygienist, minimum								300	330
0130	Maximum				▼				400	440
0200	Asbestos sampling and PCM analysis, NIOSH 7400, minimum	1 Asbe	8	1	Ea.	2.75	49		51.75	79
0210	Maximum		4	2		3	97.50		100.50	155
1000	Cleaned area samples		8	1		2.63	49		51.63	79
1100	PCM air sample analysis, NIOSH 7400, minimum		8	1		30.50	49		79.50	110
1110	Maximum	▼	4	2		3.20	97.50		100.70	156
1200	TEM air sample analysis, NIOSH 7402, minimum								90	120
1210	Maximum				▼				360	450

02 82 13.46 Decontamination of Asbestos Containment Area

0010	DECONTAMINATION OF ASBESTOS CONTAINMENT AREA									
0100	Spray exposed substrate with surfactant (bridging)									
0200	Flat surfaces	A-9	6000	.011	S.F.	.36	.52		.88	1.21
0250	Irregular surfaces		4000	.016	"	.31	.78		1.09	1.56
0300	Pipes, beams, and columns		2000	.032	L.F.	.56	1.57		2.13	3.06
1000	Spray encapsulate polyethylene sheeting		8000	.008	S.F.	.31	.39		.70	.95
1100	Roll down polyethylene sheeting		8000	.008	"		.39		.39	.61
1500	Bag polyethylene sheeting		400	.160	Ea.	.77	7.85		8.62	13.05
2000	Fine clean exposed substrate, with nylon brush		2400	.027	S.F.		1.30		1.30	2.03
2500	Wet wipe substrate		4800	.013			.65		.65	1.02
2600	Vacuum surfaces, fine brush	▼	6400	.010	▼		.49		.49	.76
3000	Structural demolition									
3100	Wood stud walls	A-9	2800	.023	S.F.		1.12		1.12	1.74
3500	Window manifolds, not incl. window replacement	▼	4200	.015	▼		.75		.75	1.16

02 82 Asbestos Remediation

02 82 13 – Asbestos Abatement

02 82 13.46 Decontamination of Asbestos Containment Area				Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
Crew								Labor	Equipment		
3600	Plywood carpet protection	A-9	2000	.032	S.F.			1.57		1.57	2.44
4000	Remove custom decontamination facility	A-10A	8	3	Ea.	15	147			162	246
4100	Remove portable decontamination facility	3 Asbe	12	2	"	12.75	97.50			110.25	166
5000	HEPA vacuum, shampoo carpeting	A-9	4800	.013	S.F.	.05	.65			.70	1.08
9000	Final cleaning of protected surfaces	A-10A	8000	.003	"		.15			.15	.23

02 82 13.47 Asbestos Waste Pkg., Handling, and Disp.

02 82 13.47 ASBESTOS WASTE PACKAGING, HANDLING, AND DISPOSAL											
0100	Collect and bag bulk material, 3 C.F. bags, by hand	A-9	400	.160	Ea.	2.35	7.85			10.20	14.80
2000	Large production vacuum loader	A-12	880	.073		.80	3.56	.83		5.19	7.35
1000	Double bag and decontaminate	A-9	960	.067		2.35	3.26			5.61	7.70
2000	Containerize bagged material in drums, per 3 C.F. drum	"	800	.080		17.25	3.91			21.16	25
3000	Cart bags 50' to dumpster	2 Asbe	400	.040	↓		1.95			1.95	3.04
5000	Disposal charges, not including haul, minimum				C.Y.					60	66
5020	Maximum				"					350	385
5100	Remove refrigerant from system	1 Stpi	40	.200	Lb.		11.15			11.15	16.80
9000	For type B (supplied air) respirator equipment, add				%						10%

02 82 13.48 Asbestos Encapsulation With Sealants

02 82 13.48 ASBESTOS ENCAPSULATION WITH SEALANTS											
0100	Ceilings and walls, minimum	A-9	21000	.003	S.F.	.27	.15			.42	.53
0110	Maximum		10600	.006		.42	.30			.72	.92
0200	Columns and beams, minimum		13300	.005		.27	.24			.51	.67
0210	Maximum		5325	.012	↓	.47	.59			1.06	1.44
0300	Pipes to 12" diameter including minor repairs, minimum		800	.080	L.F.	.37	3.91			4.28	6.50
0310	Maximum	↓	400	.160	"	1.04	7.85			8.89	13.35

02 83 Lead Remediation

02 83 19 – Lead-Based Paint Remediation

02 83 19.21 Lead Paint Remediation Plans and Methods

02 83 19.21 LEAD PAINT REMEDIATION PLANS AND METHODS											
0100	Building Survey-Commercial Building				Ea.					2,000	2,200
0200	Lead Abatement Remediation Plan									1,200	1,325
0300	Lead Paint Testing, AAS Analysis									50	55
0400	Lead Paint Testing, X-Ray Fluorescence				↓					50	55

02 83 19.23 Encapsulation of Lead-Based Paint

02 83 19.23 ENCAPSULATION OF LEAD-BASED PAINT											
0010	Interior, brushwork, trim, under 6"	1 Pard	240	.033	L.F.	2.46	1.27			3.73	4.62
0030	6" to 12" wide		180	.044		3.28	1.70			4.98	6.15
0040	Balustrades		300	.027		1.98	1.02			3	3.71
0050	Pipe to 4" diameter		500	.016		1.19	.61			1.80	2.23
0060	To 8" diameter		375	.021		1.57	.82			2.39	2.95
0070	To 12" diameter		250	.032		2.36	1.22			3.58	4.43
0080	To 16" diameter		170	.047	↓	3.47	1.80			5.27	6.50
0090	Cabinets, ornate design		200	.040	S.F.	2.97	1.53			4.50	5.55
0100	Simple design	↓	250	.032	"	2.36	1.22			3.58	4.43
0110	Doors, 3' x 7', both sides, incl. frame & trim										
0120	Flush	1 Pard	6	1.333	Ea.	30.50	51			81.50	110
0130	French, 10 – 15 lite		3	2.667	↓	6.05	102			108.05	160
0140	Panel		4	2		36.50	76.50			113	154
0150	Louvered	↓	2.75	2.909	↓	33.50	111			144.50	203
0160	Windows, per interior side, per 15 S.F.										

02 83 Lead Remediation

02 83 19 - Lead-Based Paint Remediation

02 83 19.23 Encapsulation of Lead-Based Paint

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
0170	1 to 6 lite	1 Pord	14	.571	Eq.	21	22		43	55.50
0180	7 to 10 lite		7.50	1.067		23	41		64	86.50
0190	12 lite		5.75	1.391		31	53		84	114
0200	Radiators		8	1		73.50	38.50		112	138
0210	Grilles, vents		275	.029	S.F.	2.15	1.11		3.26	4.03
0220	Walls, roller, drywall or plaster		1000	.008		.59	.31		.90	1.11
0230	With spunbonded reinforcing fabric		720	.011		.68	.43		1.11	1.39
0240	Wood		800	.010		.74	.38		1.12	1.38
0250	Ceilings, roller, drywall or plaster		900	.009		.68	.34		1.02	1.26
0260	Wood		700	.011		.84	.44		1.28	1.57
0270	Exterior, brushwork, gutters and downspouts		300	.027	L.F.	1.98	1.02		3	3.71
0280	Columns		400	.020	S.F.	1.47	.77		2.24	2.76
0290	Sproy, siding		600	.013	"	.99	.51		1.50	1.85
0300	Miscellaneous									
0310	Electrical conduit, brushwork, to 2" diameter	1 Pord	500	.016	L.F.	1.19	.61		1.80	2.23
0320	Brick, block or concrete, spray		500	.016	S.F.	1.19	.61		1.80	2.23
0330	Steel, flat surfaces and tanks to 12"		500	.016		1.19	.61		1.80	2.23
0340	Beams, brushwork		400	.020		1.47	.77		2.24	2.76
0350	Trusses		400	.020		1.47	.77		2.24	2.76

02 83 19.26 Removal of Lead-Based Paint

0010	REMOVAL OF LEAD-BASED PAINT	R028319-60								
0011	By chemicals, per application									
0050	Baseboard, to 6" wide	1 Pord	64	.125	L.F.	.66	4.78		5.44	7.90
0070	To 12" wide		32	.250	"	1.32	9.55		10.87	15.75
0200	Bolustrades, one side		28	.286	S.F.	1.32	10.95		12.27	17.80
1400	Cabinets, simple design		32	.250		1.32	9.55		10.87	15.75
1420	Ornate design		25	.320		1.32	12.25		13.57	19.75
1600	Cornice, simple design		60	.133		1.32	5.10		6.42	9.10
1620	Ornate design		20	.400		5.05	15.30		20.35	28.50
2800	Doors, one side, flush		84	.095		1	3.64		4.64	6.55
2820	Two panel		80	.100		1.32	3.83		5.15	7.15
2840	Four panel		45	.178		1.32	6.80		8.12	11.60
2880	For trim, one side, odd		64	.125	L.F.	.66	4.78		5.44	7.90
3000	Fence, picket, one side		30	.267	S.F.	1.32	10.20		11.52	16.70
3200	Grilles, one side, simple design		30	.267		1.32	10.20		11.52	16.70
3220	Ornate design		25	.320		1.32	12.25		13.57	19.75
4400	Pipes, to 4" diameter		90	.089	L.F.	1	3.40		4.40	6.20
4420	To 8" diameter		50	.160		2	6.10		8.10	11.35
4440	To 12" diameter		36	.222		3	8.50		11.50	16
4460	To 16" diameter		20	.400		4	15.30		19.30	27.50
4500	For hangers, odd		40	.200	Eq.	2.54	7.65		10.19	14.25
4800	Siding		90	.089	S.F.	1.17	3.40		4.57	6.40
5000	Trusses, open		55	.145	SF Face	1.85	5.55		7.40	10.35
6200	Windows, one side only, double hung, 1/1 light, 24" x 48" high		4	2	Eq.	25.50	76.50		102	142
6220	30" x 60" high		3	2.667		34	102		136	191
6240	36" x 72" high		2.50	3.200		41	122		163	228
6280	40" x 80" high		2	4		51	153		204	285
6400	Colonial window, 6/6 light, 24" x 48" high		2	4		51	153		204	286
6420	30" x 60" high		1.50	5.333		68	204		272	380
6440	36" x 72" high		1	8		102	305		407	570
6480	40" x 80" high		1	8		102	305		407	570
6600	8/8 light, 24" x 48" high		2	4		51	153		204	286

02 83 Lead Remediation

02 83 19 – Lead-Based Paint Remediation

02 83 19.26 Removal of Lead-Based Paint		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
6620	40" x 80" high	1	1	8	Eq.	102	305		407	570
6800	12/12 light, 24" x 48" high		1	8		102	305		407	570
6820	40" x 80" high		.75	10.667		136	410		546	760
6840	Window frame & trim items, included in pricing above									

02 85 Mold Remediation

02 85 16 – Mold Remediation Preparation and Containment

02 85 16.40 Mold Remediation Plans and Methods

0010 MOLD REMEDIATION PLANS AND METHODS										
0020	Initial inspection, average 3 bedroom home				Total				250	275
0030	Average 5 bedroom home								400	440
0040	Testing, air sample each								125	138
0050	Swab sample								125	138
0060	Tope sample								125	140
0070	Post remediation air test								125	140
0080	Mold abatement plan, average 3 bedroom home								1,200	1,300
0090	Average 5 bedroom home								1,600	1,750
0100	Packup & removal of contents, average 3 bedroom home, exd storage								8,000	8,800
0110	Average 5 bedroom home, exd storage								15,000	16,500
0600	For demolition in mold contaminated areas, see Section 02 85 33.50									
0610	For personal protection equipment, see Section 02 82 13.41									

02 85 16.50 Preparation of Mold Containment Area

0010 PREPARATION OF MOLD CONTAINMENT AREA										
0100	Pre-cleaning, HEPA vacuum and wet wipe, flat surfaces	A-9	12000	.005	S.F.	.02	.26		.28	.43
0300	Separation barrier, 2" x 4" @ 16", 1/2" plywood eo. side, 8' high	2 Corp	400	.040		3	1.76		4.76	6
0310	12' high		320	.050		3	2.21		5.21	6.70
0320	16' high		200	.080		2	3.53		5.53	7.65
0400	Personnel decontom. chamber, 2" x 4" @ 16", 3/4" ply eo. side		280	.057		4	2.52		6.52	8.30
0450	Waste decontom. chamber, 2" x 4" studs @ 16", 3/4" ply each side		360	.044		4	1.96		5.96	7.40
0500	Cover surfaces with polyethylene sheeting									
0501	Including glue and tope									
0550	Floors, each layer, 6 mil	A-9	8000	.008	S.F.	.06	.39		.45	.68
0551	4 mil		9000	.007		.04	.35		.39	.59
0560	Walls, each layer, 6 mil		6000	.011		.09	.52		.61	.91
0561	4 mil		7000	.009		.07	.45		.52	.78
0570	For heights above 12', add						20%			
0575	For heights above 20', add						30%			
0580	For fire retardant poly, add					100%				
0590	For large open areas, deduct					10%	20%			
0600	Seal floor penetrations with foam firestop to 36 sq. in.	2 Corp	200	.080	Eq.	7.60	3.53		11.13	13.85
0610	36 sq. in. to 72 sq. in.		125	.128		15.25	5.65		20.90	25.50
0615	72 sq. in. to 144 sq. in.		80	.200		30.50	8.80		39.30	47
0620	Wall penetrations, to 36 square inches		180	.089		7.60	3.92		11.52	14.45
0630	36 sq. in. to 72 sq. in.		100	.160		15.25	7.05		22.30	27.50
0640	72 sq. in. to 144 sq. in.		60	.267		30.50	11.75		42.25	51.50
0800	Caulk seams with lotex caulk	1 Corp	230	.035	L.F.	.15	1.53		1.68	2.53
0900	Set up neg. air machine, 1-2k CFM/25 M.C.F. volume	1 Asbe	4.30	1.860	Eq.		91		91	142

02 85 Mold Remediation

02 85 33 – Removal and Disposal of Materials with Mold

02 85 33.50 Demolition in Mold Contaminated Area		Daily Crew	Labor- Output	Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
0010	DEMOLITION IN MOLD CONTAMINATED AREA									
0200	Ceiling, including suspension system, plaster and lath	A-9	2100	.030	S.F.	.09	1.49		1.58	2.42
0210	Finished plaster, leaving wire lath		585	.109		.34	5.35		5.69	8.70
0220	Suspended acoustical tile		3500	.018		.06	.89		.95	1.45
0230	Concealed tile grid system		3000	.021		.07	1.04		1.11	1.70
0240	Metal pan grid system		1500	.043		.13	2.09		2.22	3.40
0250	Gypsum board		2500	.026		.08	1.25		1.33	2.04
0255	Plywood		2500	.026		.08	1.25		1.33	2.04
0260	Lighting fixtures up to 2' x 4'		72	.889	Ea.	2.75	43.50		46.25	70.50
0400	Partitions, non load bearing									
0410	Plaster, lath, and studs	A-9	690	.093	S.F.	.86	4.54		5.40	8
0450	Gypsum board and studs		1390	.046		.14	2.25		2.39	3.67
0465	Carpet & pad		1390	.046		.14	2.25		2.39	3.67
0600	Pipe insulation, air cell type, up to 4" diameter pipe		900	.071	L.F.	.22	3.48		3.70	5.65
0610	4" to 8" diameter pipe		800	.080		.25	3.91		4.16	6.35
0620	10" to 12" diameter pipe		700	.091		.28	4.47		4.75	7.25
0630	14" to 16" diameter pipe		550	.116		.36	5.70		6.06	9.25
0650	Over 16" diameter pipe		650	.098	S.F.	.31	4.82		5.13	7.85
9000	For type B (supplied air) respirator equipment, add				%					10%

02 91 Chemical Sampling, Testing and Analysis

02 91 10 – Monitoring, Sampling, Testing and Analysis

02 91 10.10 Monitoring, Chemical Sampling, Testing and Analysis

0010	MONITORING, CHEMICAL SAMPLING, TESTING AND ANALYSIS									
0015	Field Sampling of waste									
0100	Field samples, sample collection, sludge	1 Skwk	32	.250	Ea.		11.35		11.35	17.5
0110	Contaminated soils	"	32	.250	"		11.35		11.35	17.5
0200	Viols and bottles									
0210	32 oz. clear wide mouth jar (case of 12)				Ea.	43.50			43.50	48
0220	32 oz. Boston round bottle (case of 12)					35			35	38.5
0230	32 oz. HDPE bottle (case of 12)					32			32	35
0300	Laboratory analytical services									
0310	Laboratory testing 13 metals				Ea.	187			187	205
0312	13 metals + mercury					230			230	253
0314	8 metals					160			160	176
0316	Mercury only					40			40	44
0318	Single metal (only Cs, Li, Sr, Ta)					35			35	38.5
0320	Single metal (excludes Hg, Cs, Li, Sr, Ta)					35			35	38.5
0400	Hydrocarbons standard					65			65	71.5
0410	Hydrocarbons fingerprint					143			143	157
0500	Radioactivity gross alpha					169			169	186
0510	Gross alpha & beta					170			170	187
0520	Radium 226					84			84	92.5
0530	Radium 228					65			65	71.5
0540	Radon					140			140	154
0550	Uranium					80			80	88
0600	Volatile organics without GC/MS					170			170	187
0610	Volatile organics including GC/MS					170			170	187
0630	Synthetic organic compounds					1,000			1,000	1,100
0640	Herbicides					180			180	198

02 91 Chemical Sampling, Testing and Analysis

02 91 10 – Monitoring, Sampling, Testing and Analysis

02 91 10.10 Monitoring, Chemical Sampling, Testing and Analysis

		Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0650	Pesticides				Ea.	160			160	176
0660	PCB's				↓	160			160	176

Division Notes

[illegible]

Estimating Tips

General

- Carefully check all the plans and specifications. Concrete often appears on drawings other than structural drawings, including mechanical and electrical drawings for equipment pads. The cost of cutting and patching is often difficult to estimate. See Subdivision 03 81 for Concrete Cutting, Subdivision 02 41 19.16 for Cutout Demolition, Subdivision 03 05 05.10 for Concrete Demolition, and Subdivision 02 41 19.23 for Rubbish Handling (handling, loading and hauling of debris).
- Always obtain concrete prices from suppliers near the job site. A volume discount can often be negotiated, depending upon competition in the area. Remember to add for waste, particularly for slabs and footings on grade.

03 10 00 Concrete Forming and Accessories

- A primary cost for concrete construction is forming. Most jobs today are constructed with prefabricated forms. The selection of the forms best suited for the job and the total square feet of forms required for efficient concrete forming and placing are key elements in estimating concrete construction. Enough forms must be available for erection to make efficient use of the concrete placing equipment and crew.

- Concrete accessories for forming and placing depend upon the systems used. Study the plans and specifications to ensure that all special accessory requirements have been included in the cost estimate, such as anchor bolts, inserts, and hangers.
- Included within costs for forms-in-place are all necessary bracing and shoring.

03 20 00 Concrete Reinforcing

- Ascertain that the reinforcing steel supplier has included all accessories, cutting, bending, and an allowance for lapping, splicing, and waste. A good rule of thumb is 10% for lapping, splicing, and waste. Also, 10% waste should be allowed for welded wire fabric.
- The unit price items in the subdivisions for Reinforcing In Place, Glass Fiber Reinforcing, and Welded Wire Fabric include the labor to install accessories such as beam and slab bolsters, high chairs, and bar ties and tie wire. The material cost for these accessories is not included; they may be obtained from the Accessories Division.

03 30 00 Cast-In-Place Concrete

- When estimating structural concrete, pay particular attention to requirements for concrete additives, curing methods, and surface treatments. Special consideration for climate, hot or cold, must be included in your estimate. Be sure to include requirements for concrete placing equipment, and concrete finishing.

- For accurate concrete estimating, the estimator must consider each of the following major components individually: forms, reinforcing steel, ready-mix concrete, placement of the concrete, and finishing of the top surface. For faster estimating, Subdivision 03 30 53.40 for Concrete-In-Place can be used; here, various items of concrete work are presented that include the costs of all five major components (unless specifically stated otherwise).

03 40 00 Precast Concrete

03 50 00 Cast Decks and Underlayment

- The cost of hauling precast concrete structural members is often an important factor. For this reason, it is important to get a quote from the nearest supplier. It may become economically feasible to set up precasting beds on the site if the hauling costs are prohibitive.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

03 01 Maintenance of Concrete

03 01 30 – Maintenance of Cast-In-Place Concrete

03 01 30.62 Concrete Patching		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
0010 CONCRETE PATCHING							Labor	Equipment		
0100	Floors, 1/4" thick, small areas, regular grout	1 Cefi	170	.047	S.F.	1.23	1.99		3.22	4.28
0150	Epoxy grout	"	100	.080	"	7.30	3.39		10.69	13
2000	Walls, including chipping, cleaning and epoxy grout									
2100	1/4" deep	1 Cefi	65	.123	S.F.	7.30	5.20		12.50	15.65
2150	1/2" deep		50	.160		14.55	6.80		21.35	26
2200	3/4" deep	↓	40	.200	↓	22	8.45		30.45	36.50

03 05 Common Work Results for Concrete

03 05 05 – Selective Concrete Demolition

03 05 05.10 Selective Demolition, Concrete

0010	SELECTIVE DEMOLITION, CONCRETE	R024119-10								
0012	Excludes saw cutting, torch cutting, loading or hauling									
0050	Break up into small pieces, minimum reinforcing	B-9	24	1.667	C.Y.		59	8.70	67.70	101
0060	Average reinforcing		16	2.500			89	13.10	102.10	151
0070	Maximum reinforcing	↓	8	5	↓		178	26	204	300
0150	Remove whole pieces, up to 2 tons per piece	E-18	36	1.111	Ed.		54.50	26.50	81	124
0160	2 – 5 tons per piece		30	1.333			65.50	31.50	97	149
0170	5 – 10 tons per piece		24	1.667			82	39.50	121.50	186
0180	10 – 15 tons per piece		18	2.222			109	53	162	248
0250	Precast unit embedded in masonry, up to 1 C.F.	D-1	16	1			40		40	60
0260	1 – 2 C.F.		12	1.333			53		53	80
0270	2 – 5 C.F.		10	1.600			64		64	96.50
0280	5 – 10 C.F.	↓	8	2	↓		79.50		79.50	120
0990	For hydrodemolition see Section 02 41 13.15									

03 05 13 – Basic Concrete Materials

03 05 13.20 Concrete Admixtures and Surface Treatments

0010	CONCRETE ADMIXTURES AND SURFACE TREATMENTS									
0040	Abrasives, aluminum oxide, over 20 tons				Lb.	1.57			1.57	1.73
0050	1 to 20 tons					1.73			1.73	1.96
0070	Under 1 ton					1.80			1.80	1.98
0100	Silicon carbide, black, over 20 tons					2.34			2.34	2.57
0110	1 to 20 tons					2.69			2.69	2.96
0120	Under 1 ton					2.80			2.80	3.08
0200	Air entraining agent, .7 to 1.5 oz. per bag, 55 gallon drum				Gal.	11.60			11.60	12.75
0220	5 gallon pail					15.95			15.95	17.55
0300	Banding agent, acrylic latex, 250 S.F. per gallon, 5 gallon pail					21			21	23
0320	Epoxy resin, 80 S.F. per gallon, 4 gallon case				↓	59.50			59.50	65.50
0400	Calcium chloride, 50 lb. bags, TL lots				Ton	670			670	735
0420	Less than truckload lots				Bag	20			20	22
0500	Carbon black, liquid, 2 to 8 lb. per bag of cement				Lb.	7.55			7.55	8.30
0600	Colors, integral, 2 to 10 lb. per bag of cement, minimum					2.43			2.43	2.69
0610	Average					3.13			3.13	3.40
0620	Maximum				↓	4.92			4.92	5.40
0920	Dustproofing compound, 250 S.F./gal., 5 gallon pail				Gal.	7.75			7.75	8.50
1010	Epoxy based, 125 S.F./gal., 5 gallon pail				"	58.50			58.50	64
1100	Hardeners, metallic, 55 lb. bags, natural (grey)				Lb.	.90			.90	.9
1200	Colors					1.48			1.48	1.60
1300	Non-metallic, 55 lb. bags, natural grey				↓	.52			.52	.5
1320	Colors					.79			.79	.8

03 05 Common Work Results for Concrete

03 05 13 – Basic Concrete Materials

03 05 13.20 Concrete Admixtures and Surface Treatments		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
1550	Release agent, for tilt slabs, 5 gallon pail				Gal.	15.60			15.60	17.15
1570	For forms, 5 gallon pail					12.35			12.35	13.55
1590	Concrete release agent for forms, 100% biodegradeable, zero VOC, 5 gal pail					18.60			18.60	20.50
1595	55 gallon drum					17.65			17.65	19.45
1600	Sealer, hardener and dustproof, epoxy-based, 125 S.F./gal., 5 gallon, min					58.50			58.50	64
1620	5 gallon pail, maximum					64			64	70.50
1630	Sealer, solvent-based, 250 S.F./gal., 55 gallon drum					20			20	22
1640	5 gallon pail					27			27	29.50
1650	Sealer, water based, 350 S.F., 55 gallon drum					19.80			19.80	22
1660	5 gallon pail					23			23	25.50
1900	Set retorder, 100 S.F./gal., 1 gallon pail				▼	19.10			19.10	21
2000	Waterproofing, integral 1 lb. per bag of cement				Lb.	1.76			1.76	1.94
2100	Powdered metallic, 40 lb. per 100 S.F., minimum					2.09			2.09	2.30
2120	Maximum				▼	2.92			2.92	3.21
3000	For integral colors, 2500 psi (5 bag mix)									
3100	Red, yellow or brown, 1.8 lb. per bag, odd				C.Y.	22			22	24
3200	9.4 lb. per bag, odd					114			114	126
3400	Black, 1.8 lb. per bag, odd					28			28	31
3500	7.5 lb. per bag, odd					117			117	129
3700	Green, 1.8 lb. per bag, odd					44.50			44.50	48.50
3800	7.5 lb. per bag, odd				▼	185			185	203
6000	Concrete ready-mix additives, recycled cool fly ash, mixed at plant				Ton	56			56	61.50
6010	Recycled blast furnace slag, mixed at plant				"	87			87	95.50

03 05 13.25 Aggregate

0010	AGGREGATE	R033105-20								
0100	Lightweight vermiculite or perlite, 4 C.F. bag, C.L. lots				Bog	21.50			21.50	23.50
0150	L.C.L. lots	R033105-40			"	23.50			23.50	26
0250	Sand & stone, loaded at pit, crushed bank gravel				Ton	17.30			17.30	19.05
0350	Sand, washed, for concrete	R033105-50				16.60			16.60	18.25
0400	For plaster or brick					16.60			16.60	18.25
0450	Stone, 3/4" to 1-1/2"					19.25			19.25	21
0470	Round, river stone					30			30	33
0500	3/8" roofing stone & 1/2" pea stone					24			24	26.50
0550	For trucking 10 miles (5 mile R/T), add to the above	B-34B	117	.068			2.41	5	7.41	9.15
0600	30 miles (15 mi R/T), add to the above	"	72	.111	▼		3.92	8.10	12.02	14.90
0850	Sand & stone, loaded at pit, crushed bank gravel				C.Y.	24			24	26.50
0950	Sand, washed, for concrete					23			23	25.50
1000	For plaster or brick					23			23	25.50
1050	Stone, 3/4" to 1-1/2"					37			37	40.50
1055	Round, river stone					33.50			33.50	37
1100	3/8" roofing stone & 1/2" pea stone					41			41	45
1150	For trucking 10 miles (5 mi R/T), add to the above	B-34B	78	.103			3.62	7.50	11.12	13.75
1200	30 miles (15 mi R/T), add to the above	"	48	.167	▼		5.90	12.20	18.10	22.50
1310	Quartz chips, 50 lb. bags				Cwt.	19.45			19.45	21.50
1330	Silico chips, 50 lb. bags					10.65			10.65	11.75
1410	White marble, 3/8" to 1/2", 50 lb. bags				▼	15.85			15.85	17.40
1430	3/4"				Ton	88			88	97

03 05 13.30 Cement

0010	CEMENT	R033105-20								
0240	Portland, Type I/II, TL lots, 94 lb. bags				Bog	11.50			11.50	12.65
0250	LTL/LCL lots	R033105-30			"	13.50			13.50	14.85
0300	Trucked in bulk, per cwt				Cwt.	7.80			7.80	8.60

03 05 Common Work Results for Concrete

03 05 13 – Basic Concrete Materials

03 05 13.30 Cement		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
							Labor	Equipment		
0400	Type III, high early strength, TL lots, 94 lb. bags	R033105-40			Bag	12.60			12.60	13.85
0420	L.T.L. or L.C.L. lots					14.10			14.10	15.50
0500	White, type III, high early strength, T.L. or C.L. lots, bags	R033105-50				25			25	27.50
0520	L.T.L. or L.C.L. lots					28			28	31
0600	White, type I, T.L. or C.L. lots, bags					24.50			24.50	27
0620	L.T.L. or L.C.L. lots					26			26	28.50

03 05 13.80 Waterproofing and Dampproofing

0010	WATERPROOFING AND DAMPPROOFING									
0050	Integral waterproofing, add to cost of regular concrete				C.Y.	10.55			10.55	11.60

03 05 13.85 Winter Protection

0010	WINTER PROTECTION									
0012	For heated ready mix, odd, minimum				C.Y.	4.25			4.25	4.60
0050	Maximum				"	5.30			5.30	5.85
0100	Temporary heat to protect concrete, 24 hours, minimum	2 Clob	50	.320	M.S.F.	695	11.25		706.25	780
0150	Maximum	"	25	.640	"	905	22.50		927.50	1,025
0200	Temporary shelter for slab on grade, wood frame/polyethylene sheeting									
0201	Build or remove, minimum	2 Corp	10	1.600	M.S.F.	259	70.50		329.50	395
0210	Maximum	"	3	5.333	"	325	235		560	720
0500	Electrically heated pads, 110 volts, 15 watts per S.F., buy				S.F.	6.55			6.55	7.20
0600	20 watts per S.F., buy					8.70			8.70	9.50
0710	Electrically, heated pads, 15 watts/S.F., 20 uses, minimum					.23			.23	.25
0800	Maximum					.39			.39	.45

03 11 Concrete Forming

03 11 13 – Structural Cast-In-Place Concrete Forming

03 11 13.20 Forms In Place, Beams and Girders

0010	FORMS IN PLACE, BEAMS AND GIRDERS	R031113-40								
0500	Exterior spondrel, job-built plywood, 12" wide, 1 use		C-2	225	.213	SFCA	2.51	9.15	11.66	16.8
0550	2 use	R031113-60		275	.175		1.32	7.50	8.82	13
0600	3 use			295	.163		1.01	7	8.01	11.80
0650	4 use			310	.155		.82	6.65	7.47	11.10
1000	18" wide, 1 use			250	.192		2.20	8.25	10.45	15.10
1050	2 use			275	.175		1.21	7.50	8.71	12.90
1100	3 use			305	.157		.88	6.75	7.63	11.30
1150	4 use			315	.152		.72	6.55	7.27	10.80
1500	24" wide, 1 use			265	.181	2	7.80		9.80	14.10
1550	2 use			290	.166		1.13	7.10	8.23	12.20
1600	3 use			315	.152		.80	6.55	7.35	10.90
1650	4 use			325	.148		.65	6.35	7	10.40
2000	Interior beam, job-built plywood, 12" wide, 1 use			300	.160		3.03	6.85	9.88	13.90
2050	2 use			340	.141		1.46	6.05	7.51	10.90
2100	3 use			364	.132		1.21	5.65	6.86	10.00
2150	4 use			377	.127		.99	5.45	6.44	9.50
2500	24" wide, 1 use			320	.150		2.05	6.45	8.50	12.10
2550	2 use			365	.132		1.15	5.65	6.80	9.90
2600	3 use			385	.125		.81	5.35	6.16	9.10
2650	4 use			395	.122		.66	5.20	5.86	8.80
3000	Encasing steel beam, hung, job-built plywood, 1 use			325	.148		2.57	6.35	8.92	12.50
3050	2 use			390	.123		1.41	5.30	6.71	9.70
3100	3 use			415	.116		1.03	4.97	6	8.80

03 11 Concrete Forming

03 11 13 – Structural Cast-In-Place Concrete Forming

03 11 13.20 Forms In Place, Beams and Girders		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
3150	4 use	C-2	430	.112	SFCA	.83	4.79		5.62	8.25
3500	Battams only, to 30" wide, job-built plywood, 1 use		230	.209		3.46	8.95		12.41	17.60
3550	2 use		265	.181		1.94	7.80		9.74	14.10
3600	3 use		280	.171		1.38	7.35		8.73	12.80
3650	4 use		290	.166		1.12	7.10		8.22	12.20
4000	Sides only, vertical, 36" high, job-built plywood, 1 use		335	.143		3.72	6.15		9.87	13.55
4050	2 use		405	.119		2.04	5.10		7.14	10.10
4100	3 use		430	.112		1.49	4.79		6.28	9
4150	4 use		445	.108		1.21	4.63		5.84	8.50
4500	Sloped sides, 36" high, 1 use		305	.157		3.62	6.75		10.37	14.40
4550	2 use		370	.130		2.02	5.55		7.57	10.75
4600	3 use		405	.119		1.45	5.10		6.55	9.45
4650	4 use		425	.113		1.18	4.85		6.03	8.75
5000	Upstanding beams, 36" high, 1 use		225	.213		4.53	9.15		13.68	19.10
5050	2 use		255	.188		2.50	8.10		10.60	15.20
5100	3 use		275	.175		1.83	7.50		9.33	13.55
5150	4 use		280	.171		1.48	7.35		8.83	12.95

03 11 13.25 Forms In Place, Columns

0010	FORMS IN PLACE, COLUMNS	R031113-40								
0500	Round fiberglass, 4 use per ma., rent, 12" diameter		C-1	160	.200	L.F.	8.15	8.35	16.50	22
0550	16" diameter	R031113-60		150	.213		9.70	8.95	18.65	24.50
0600	18" diameter			140	.229		10.85	9.55	20.40	26.50
0650	24" diameter			135	.237		13.50	9.90	23.40	30
0700	28" diameter			130	.246		15.10	10.30	25.40	32.50
0800	30" diameter			125	.256		15.75	10.70	26.45	34
0850	36" diameter			120	.267		21	11.15	32.15	40
1500	Round fiber tube, recycled paper, 1 use, 8" diameter	G		155	.206		1.51	8.65	10.16	14.95
1550	10" diameter	G		155	.206		2.10	8.65	10.75	15.60
1600	12" diameter	G		150	.213		2.44	8.95	11.39	16.45
1650	14" diameter	G		145	.221		3.54	9.25	12.79	18.10
1700	16" diameter	G		140	.229		4.29	9.55	13.84	19.40
1720	18" diameter	G		140	.229		5	9.55	14.55	20
1750	20" diameter	G		135	.237		6.85	9.90	16.75	23
1800	24" diameter	G		130	.246		8.75	10.30	19.05	25.50
1850	30" diameter	G		125	.256		12.90	10.70	23.60	30.50
1900	36" diameter	G		115	.278		16.15	11.65	27.80	35.50
1950	42" diameter	G		100	.320		40	13.40	53.40	64.50
2000	48" diameter	G		85	.376		46	15.75	61.75	75
2200	For seamless type, add					15%				
3000	Round, steel, 4 use per ma., rent, regular duty, 14" diameter	G	C-1	145	.221	L.F.	15.45	9.25	24.70	31
3050	16" diameter	G		125	.256		15.75	10.70	26.45	34
3100	Heavy duty, 20" diameter	G		105	.305		17.40	12.75	30.15	39
3150	24" diameter	G		85	.376		18.90	15.75	34.65	45
3200	30" diameter	G		70	.457		22	19.15	41.15	53.50
3250	36" diameter	G		60	.533		23.50	22.50	46	60
3300	48" diameter	G		50	.640		69.50	27	96.50	118
3350	60" diameter	G		45	.711		42.50	30	72.50	93
4500	For second and succeeding months, deduct					50%				
5000	Job-built plywood, 8" x 8" columns, 1 use		C-1	165	.194	SFCA	2.62	8.10	10.72	15.40
5050	2 use			195	.164		1.49	6.85	8.34	12.20
5100	3 use			210	.152		1.05	6.40	7.45	10.95
5150	4 use			215	.149		.87	6.25	7.12	10.55

03 11 Concrete Forming

03 11 13 – Structural Cast-In-Place Concrete Forming

03 11 13.25 Forms In Place, Columns		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
5500	12" x 12" columns, 1 use	C-1	180	.178	SFCA	2.38	7.45		9.83	14.0
5550	2 use		210	.152		1.31	6.40		7.71	11.2
5600	3 use		220	.145		.95	6.10		7.05	10.4
5650	4 use		225	.142		.77	5.95		6.72	10
6000	16" x 16" columns, 1 use		185	.173		2.31	7.25		9.56	13.7
6050	2 use		215	.149		1.26	6.25		7.51	11
6100	3 use		230	.139		.93	5.80		6.73	10
6150	4 use		235	.136		.76	5.70		6.46	9.6
6500	24" x 24" columns, 1 use		190	.168		2.57	7.05		9.62	13.6
6550	2 use		216	.148		1.41	6.20		7.61	11.1
6600	3 use		230	.139		1.03	5.80		6.83	10.1
6650	4 use		238	.134		.83	5.65		6.48	9.5
7000	36" x 36" columns, 1 use		200	.160		1.84	6.70		8.54	12.3
7050	2 use		230	.139		1.06	5.80		6.86	10.1
7100	3 use		245	.131		.74	5.45		6.19	9.2
7150	4 use	▼	250	.128	▼	.60	5.35		5.95	8.9
7400	Steel formed plywood, based on 50 uses of purchased forms, and 4 uses of bracing lumber									
7420										
7500	8" x 8" column	C-1	340	.094	SFCA	1.82	3.94		5.76	8.0
7550	10" x 10"		350	.091		1.59	3.83		5.42	7.6
7600	12" x 12"		370	.086		1.35	3.62		4.97	7.0
7650	16" x 16"		400	.080		1.05	3.35		4.40	6.3
7700	20" x 20"		420	.076		.93	3.19		4.12	5.9
7750	24" x 24"		440	.073		.67	3.04		3.71	5.4
7755	30" x 30"		440	.073		.86	3.04		3.90	5.6
7760	36" x 36"	▼	460	.070	▼	.75	2.91		3.66	5.3
03 11 13.30 Forms In Place, Culvert										
0010	FORMS IN PLACE, CULVERT	R031113-40								
0015	5' to 8' square or rectangular, 1 use		C-1	170	.188	SFCA	3.13	7.90	11.03	15.5
0050	2 use	R031113-60		180	.178		1.86	7.45	9.31	13.5
0100	3 use			190	.168		1.44	7.05	8.49	12.4
0150	4 use		▼	200	.160	▼	1.23	6.70	7.93	11.6
03 11 13.35 Forms In Place, Elevated Slabs										
0010	FORMS IN PLACE, ELEVATED SLABS	R031113-40								
1000	Flat plate, job-built plywood, to 15' high, 1 use	R031113-60	C-2	470	.102	S.F.	3.18	4.38	7.56	10.2
1050	2 use			520	.092		1.75	3.96	5.71	8
1100	3 use			545	.088		1.27	3.78	5.05	7.2
1150	4 use			560	.086		1.03	3.68	4.71	6.8
1500	15' to 20' high ceilings, 4 use			495	.097		1.03	4.16	5.19	7.5
1600	21' to 35' high ceilings, 4 use			450	.107		1.30	4.58	5.88	8.5
2000	Floor slab, drop panels, job-built plywood, to 15' high, 1 use			449	.107		3.57	4.59	8.16	11
2050	2 use			509	.094		1.96	4.05	6.01	8.4
2100	3 use			532	.090		1.43	3.87	5.30	7.5
2150	4 use			544	.088		1.16	3.79	4.95	7.1
2250	15' to 20' high ceilings, 4 use			480	.100		2.08	4.29	6.37	8.5
2350	20' to 35' high ceilings, 4 use			435	.110		2.34	4.74	7.08	9.8
3000	Floor slab hung from steel beams, 1 use			485	.099		2.14	4.25	6.39	8.9
3050	2 use			535	.090		1.69	3.85	5.54	7.8
3100	3 use			550	.087		1.54	3.75	5.29	7.4
3150	4 use			565	.085		1.47	3.65	5.12	7.2
3500	Floor slab, with 1-way joist pans, 1 use			415	.116		5.35	4.97	10.32	13.5
3550	2 use			445	.108		3.72	4.63	8.35	11.2

03 11 Concrete Forming

03 11 13 – Structural Cast-In-Place Concrete Forming

03 11 13.35 Forms In Place, Elevated Slabs				Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs			Total Inc O&P
									Labor	Equipment	Total	
3600	3 use				C-2	475	.101	S.F.	3.18	4.34	7.52	10.20
3650	4 use					500	.096		2.92	4.12	7.04	9.55
4500	With 2-way waffle dimes, 1 use					405	.119		5.45	5.10	10.55	13.85
4520	2 use					450	.107		3.85	4.58	8.43	11.30
4530	3 use					460	.104		3.31	4.48	7.79	10.55
4550	4 use					470	.102		3.04	4.38	7.42	10.10
5000	Box out for slab apenings, over 16" deep, 1 use					190	.253	SFCA	3.93	10.85	14.78	21
5050	2 use					240	.200	"	2.16	8.60	10.76	15.55
5500	Shallow slab box outs, to 10 S.F.					42	1.143	Ea.	9.75	49	58.75	86.50
5550	Over 10 S.F. (use perimeter)					600	.080	L.F.	1.31	3.43	4.74	6.75
6000	Bulkhead farms for slab, with keyway, 1 use, 2 piece					500	.096		1.85	4.12	5.97	8.40
6100	3 piece (see also edge farms)					460	.104		1.97	4.48	6.45	9.05
6200	Slab bulkhead form, 4-1/2" high, exp metal, w/keyway & stakes	G			C-1	1200	.027		1.13	1.12	2.25	2.96
6210	5-1/2" high	G				1100	.029		1.25	1.22	2.47	3.25
6215	7-1/2" high	G				960	.033		1.47	1.39	2.86	3.77
6220	9-1/2" high	G				840	.038		1.67	1.59	3.26	4.29
6500	Curb forms, wood, 6" to 12" high, an elevated slabs, 1 use					180	.178	SFCA	1.29	7.45	8.74	12.85
6550	2 use					205	.156		.71	6.55	7.26	10.85
6600	3 use					220	.145		.52	6.10	6.62	9.90
6650	4 use					225	.142		.42	5.95	6.37	9.60
7000	Edge farms to 6" high, an elevated slab, 4 use					500	.064	L.F.	.17	2.68	2.85	4.31
7500	Depressed area farms to 12" high, 4 use					300	.107		.88	4.46	5.34	7.80
7550	12" to 24" high, 4 use					175	.183		1.19	7.65	8.84	13.05
8000	Perimeter deck and rail for elevated slabs, straight					90	.356		9.75	14.90	24.65	33.50
8050	Curved					65	.492		13.35	20.50	33.85	46
8500	Void farms, round plastic, 8" high x 3" diameter	G				450	.071	Ea.	1.89	2.98	4.87	6.65
8550	4" diameter	G				425	.075		2.66	3.15	5.81	7.80
8600	6" diameter	G				400	.080		3.97	3.35	7.32	9.50
8650	8" diameter	G				375	.085		6	3.57	9.57	12.10

03 11 13.40 Forms In Place, Equipment Foundations

0010	FORMS IN PLACE, EQUIPMENT FOUNDATIONS	R031113-40										
0020	1 use		C-2	160	.300	SFCA		2.93	12.90		15.83	23
0050	2 use	R031113-60		190	.253			1.61	10.85		12.46	18.45
0100	3 use			200	.240			1.17	10.30		11.47	17.15
0150	4 use			205	.234			.96	10.05		11.01	16.50

03 11 13.45 Forms In Place, Footings

0010	FORMS IN PLACE, FOOTINGS	R031113-40										
0020	Continuous wall, plywood, 1 use		C-1	375	.085	SFCA		5.95	3.57		9.52	12
0050	2 use	R031113-60		440	.073			3.26	3.04		6.30	8.25
0100	3 use			470	.068			2.37	2.85		5.22	7
0150	4 use			485	.066			1.93	2.76		4.69	6.35
0500	Dowel supports for footings or beams, 1 use			500	.064	L.F.		.74	2.68		3.42	4.93
1000	Integral starter wall, to 4" high, 1 use			400	.080			.80	3.35		4.15	6.05
1500	Keyway, 4 use, tapered wood, 2" x 4"		1 Carp	530	.015			.18	.67		.85	1.21
1550	2" x 6"			500	.016			.27	.71		.98	1.38
2000	Tapered plastic			530	.015			.60	.67		1.27	1.68
2250	Far keyway hung from supports, add			150	.053			.74	2.35		3.09	4.43
3000	Pile cap, square or rectangular, job-built plywood, 1 use		C-1	290	.110	SFCA		2.36	4.62		6.98	9.70
3050	2 use			346	.092			1.30	3.87		5.17	7.40
3100	3 use			371	.086			.94	3.61		4.55	6.60
3150	4 use			383	.084			.77	3.50		4.27	6.25
4000	Triangular or hexagonal, 1 use			225	.142			2.75	5.95		8.70	12.20

03 11 Concrete Forming

03 11 13 – Structural Cast-In-Place Concrete Forming

03 11 13.45 Forms In Place, Footings		Crew	Doily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
4050	2 use	C-1	280	.114	SFCA	1.51	4.78		6.29	9
4100	3 use		305	.105		1.10	4.39		5.49	7.95
4150	4 use		315	.102		.89	4.25		5.14	7.55
5000	Spread footings, job-built lumber, 1 use		305	.105		1.90	4.39		6.29	8.81
5050	2 use		371	.086		1.06	3.61		4.67	6.72
5100	3 use		401	.080		.76	3.34		4.10	6
5150	4 use		414	.077		.62	3.23		3.85	5.65
6000	Supports for dowels, plinths or templates, 2' x 2' footing		25	1.280	Eq.	4.92	53.50		58.42	88
6050	4' x 4' footing		22	1.455		9.85	61		70.85	104
6100	8' x 8' footing		20	1.600		19.70	67		86.70	125
6150	12' x 12' footing		17	1.882		24	79		103	147
7000	Plinths, job-built plywood, 1 use		250	.128	SFCA	2.49	5.35		7.84	11
7100	4 use		270	.119	"	.82	4.96		5.78	8.55

03 11 13.47 Forms In Place, Gas Station Forms

0010	FORMS IN PLACE, GAS STATION FORMS									
0050	Curb fascia, with template, 12 ga. steel, left in place, 9" high	G	1 Carp	50	.160	L.F.	13.10	7.05	20.15	25.50
1000	Sign or light boses, 18" diameter, 9" high	G		9	.889	Eq.	82.50	39	121.50	152
1050	30" diameter, 13" high	G		8	1		131	44	175	212
2000	Island forms, 10' long, 9" high, 3'-6" wide	G	C-1	10	3.200		365	134	499	610
2050	4' wide	G		9	3.556		380	149	529	645
2500	20' long, 9" high, 4' wide	G		6	5.333		610	223	833	1,025
2550	5' wide	G		5	6.400		635	268	903	1,100

03 11 13.50 Forms In Place, Grade Beam

0010	FORMS IN PLACE, GRADE BEAM		R031113-40								
0020	Job-built plywood, 1 use			C-2	530	.091	SFCA	2.68	3.89	6.57	8.94
0050	2 use		R031113-60		580	.083		1.48	3.55	5.03	7.00
0100	3 use				600	.080		1.07	3.43	4.50	6.50
0150	4 use				605	.079		.87	3.41	4.28	6.20

03 11 13.55 Forms In Place, Mat Foundation

0010	FORMS IN PLACE, MAT FOUNDATION		R031113-40								
0020	Job-built plywood, 1 use			C-2	290	.166	SFCA	2.55	7.10	9.65	13.7
0050	2 use		R031113-60		310	.155		1.05	6.65	7.70	11.4
0100	3 use				330	.145		.67	6.25	6.92	10.3
0120	4 use				350	.137		.62	5.90	6.52	9.7

03 11 13.65 Forms In Place, Slab On Grade

0010	FORMS IN PLACE, SLAB ON GRADE		R031113-40								
1000	Bulkhead forms w/keyway, wood, 6" high, 1 use			C-1	510	.063	L.F.	.87	2.63	3.50	4.9
1050	2 uses		R031113-60		400	.080		.48	3.35	3.83	5.4
1100	4 uses				350	.091		.28	3.83	4.11	6.2
1400	Bulkhead form for slab, 4-1/2" high, exp metal, incl keyway & stakes				1200	.027		1.13	1.12	2.25	2.9
1410	5-1/2" high				1100	.029		1.25	1.22	2.47	3.2
1420	7-1/2" high				960	.033		1.47	1.39	2.86	3.7
1430	9-1/2" high				840	.038		1.67	1.59	3.26	4.2
2000	Curb forms, wood, 6" to 12" high, on grade, 1 use				215	.149	SFCA	1.97	6.25	8.22	11.7
2050	2 use				250	.128		1.09	5.35	6.44	9.4
2100	3 use				265	.121		.79	5.05	5.84	8.4
2150	4 use				275	.116		.64	4.87	5.51	8.2
3000	Edge forms, wood, 4 use, on grade, to 6" high				600	.053	L.F.	.29	2.23	2.52	3.7
3050	7" to 12" high				435	.074	SFCA	.62	3.08	3.70	5.4
3500	For depressed slabs, 4 use, to 12" high				300	.107	L.F.	.58	4.46	5.04	7.5
3550	To 24" high				175	.183		.75	7.65	8.40	12.6
4000	For slab blockouts, to 12" high, 1 use				200	.160		.60	6.70	7.30	10.3

03 11 Concrete Forming

03 11 13 – Structural Cast-In-Place Concrete Forming

03 11 13.65 Forms In Place, Slab On Grade		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
050	To 24" high, 1 use	C-1	120	.267	L.F.	.76	11.15		11.91	18
100	Plastic (extruded), to 6" high, multiple use, on grade	↓	800	.040	↓	7.90	1.67		9.57	11.30
0000	Screed, 24 ga. metal key joint, see Section 03 15 05.25									
020	Wood, incl. wood stakes, 1" x 3"	C-1	900	.036	L.F.	.68	1.49		2.17	3.04
050	2" x 4"		900	.036	"	.67	1.49		2.16	3.03
000	Trench forms in floor, wood, 1 use		160	.200	SFCA	1.56	8.35		9.91	14.60
050	2 use		175	.183		.86	7.65		8.51	12.70
100	3 use		180	.178		.62	7.45		8.07	12.15
150	4 use		185	.173		.51	7.25		7.76	11.70
3760	Void form, corrugated fiberboard, 4" x 12", 4' long	G	3000	.011	S.F.	2.64	.45		3.09	3.59
3770	6" x 12", 4' long	↓	3000	.011		3.10	.45		3.55	4.10
3780	1/4" thick hardboard protective cover for void form	2 Carp	1500	.011	↓	.57	.47		1.04	1.35

03 11 13.85 Forms In Place, Walls

0010	FORMS IN PLACE, WALLS	R031113-10								
0100	Box out for wall openings, to 16" thick, to 10 S.F.	C-2	24	2	Eq.	21	86		107	156
0150	Over 10 S.F. (use perimeter)	R031113-40	"	280	L.F.	1.83	7.35		9.18	13.30
0250	Brick shelf, 4" w, add to wall forms, use wall area abv shelf									
0260	1 use	R031113-60	C-2	240	.200	SFCA	1.97	8.60	10.57	15.35
0300	2 use			275	.175	↓	1.08	7.50	8.58	12.75
0350	4 use			300	.160	↓	.79	6.85	7.64	11.40
0500	Bulkhead, wood with keyway, 1 use, 2 piece	↓		265	.181	L.F.	1.60	7.80	9.40	13.70
0600	Bulkhead forms with keyway, 1 piece expanded metal, 8" wall	G	C-1	1000	.032		1.47	1.34	2.81	3.68
0610	10" wall	G		800	.040		1.67	1.67	3.34	4.42
0620	12" wall	G	↓	525	.061	↓	2	2.55	4.55	6.10
0700	Buttress, to 8' high, 1 use	C-2	350	.137	SFCA	3.08	5.90		8.98	12.45
0750	2 use			430	.112		1.69	4.79	6.48	9.20
0800	3 use			460	.104		1.23	4.48	5.71	8.25
0850	4 use			480	.100	↓	1.02	4.29	5.31	7.70
1000	Carbel or haunch, to 12" wide, add to wall forms, 1 use			150	.320	L.F.	1.91	13.75	15.66	23
1050	2 use			170	.282		1.05	12.10	13.15	19.80
1100	3 use			175	.274		.76	11.80	12.56	18.95
1150	4 use			180	.267	↓	.62	11.45	12.07	18.30
2000	Wall, job-built plywood, to 8' high, 1 use			370	.130	SFCA	2.18	5.55	7.73	10.95
2050	2 use			435	.110		1.39	4.74	6.13	8.85
2100	3 use			495	.097		1.01	4.16	5.17	7.50
2150	4 use			505	.095		.82	4.08	4.90	7.20
2400	Over 8' to 16' high, 1 use			280	.171		2.40	7.35	9.75	13.95
2450	2 use			345	.139		1.02	5.95	6.97	10.30
2500	3 use			375	.128		.73	5.50	6.23	9.25
2550	4 use			395	.122		.60	5.20	5.80	8.70
2700	Over 16' high, 1 use			235	.204		2.07	8.75	10.82	15.80
2750	2 use			290	.166		1.14	7.10	8.24	12.20
2800	3 use			315	.152		.83	6.55	7.38	10.95
2850	4 use			330	.145		.67	6.25	6.92	10.35
4000	Radial, smooth curved, job-built plywood, 1 use			245	.196		1.92	8.40	10.32	15.05
4050	2 use			300	.160		1.06	6.85	7.91	11.70
4100	3 use			325	.148		.77	6.35	7.12	10.60
4150	4 use			335	.143		.63	6.15	6.78	10.15
4200	Below grade, job-built plywood, 1 use			225	.213		2.17	9.15	11.32	16.50
4210	2 use			225	.213		1.20	9.15	10.35	15.40
4220	3 use			225	.213		1	9.15	10.15	15.20
4230	4 use	↓		225	.213	↓	.71	9.15	9.86	14.90

03 11 Concrete Forming

03 11 13 - Structural Cast-In-Place Concrete Forming

03 11 13.85 Forms In Place, Walls		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
							Labor	Equipment		
4300	Curved, 2" chords, job-built plywood, 1 use	C-2	290	.166	SFCA	1.64	7.10		8.74	12.75
4350	2 use		355	.135		.90	5.80		6.70	9.95
4400	3 use		385	.125		.66	5.35		6.01	8.95
4450	4 use		400	.120		.53	5.15		5.68	8.55
4500	Over 8' high, 1 use		290	.166		.70	7.10		7.80	11.70
4525	2 use		355	.135		.39	5.80		6.19	9.35
4550	3 use		385	.125		.28	5.35		5.63	8.55
4575	4 use		400	.120		.23	5.15		5.38	8.25
4600	Retaining wall, battered, job-built plyw'd, to 8' high, 1 use		300	.160		1.55	6.85		8.40	12.25
4650	2 use		355	.135		.85	5.80		6.65	9.75
4700	3 use		375	.128		.62	5.50		6.12	9.15
4750	4 use		390	.123		.50	5.30		5.80	8.70
4900	Over 8' to 16' high, 1 use		240	.200		1.69	8.60		10.29	15.05
4950	2 use		295	.163		.93	7		7.93	11.75
5000	3 use		305	.157		.68	6.75		7.43	11.15
5050	4 use	▼	320	.150		.55	6.45		7	10.50
5500	For gang wall forming, 192 S.F. sections, deduct					10%	10%			
5550	384 S.F. sections, deduct					20%	20%			
5750	Liners for forms (add to wall forms), A.B.S. plastic				▼					
5800	Aged wood, 4" wide, 1 use	1 Corp	256	.031	SFCA	3.12	1.38		4.50	5.55
5820	2 use		256	.031		1.72	1.38		3.10	4.70
5830	3 use		256	.031		1.25	1.38		2.63	3.45
5840	4 use		256	.031		1.01	1.38		2.39	3.24
5900	Fractured rope rib, 1 use		192	.042		4.52	1.84		6.36	7.80
5925	2 use		192	.042		2.49	1.84		4.33	5.55
5950	3 use		192	.042		1.81	1.84		3.65	4.62
6000	4 use		192	.042		1.47	1.84		3.31	4.45
6100	Ribbed, 3/4" deep x 1-1/2" O.C., 1 use		224	.036		4.52	1.57		6.09	7.40
6125	2 use		224	.036		2.49	1.57		4.06	5.15
6150	3 use		224	.036		1.81	1.57		3.38	4.4
6200	4 use		224	.036		1.47	1.57		3.04	4.04
6300	Rustic brick pattern, 1 use		224	.036		3.12	1.57		4.69	5.85
6325	2 use		224	.036		1.72	1.57		3.29	4.3
6350	3 use		224	.036		1.25	1.57		2.82	3.75
6400	4 use		224	.036		1.01	1.57		2.58	3.54
6500	3/8" striated, random, 1 use		224	.036		3.12	1.57		4.69	5.85
6525	2 use		224	.036		1.72	1.57		3.29	4.3
6550	3 use		224	.036		1.25	1.57		2.82	3.75
6600	4 use		224	.036		1.01	1.57		2.58	3.54
6850	Random vertical rustication, 1 use		384	.021		5.90	.92		6.82	7.90
6900	2 use		384	.021		3.26	.92		4.18	4.95
6925	3 use		384	.021		2.37	.92		3.29	4.00
6950	4 use		384	.021	▼	1.92	.92		2.84	3.53
7050	Wood, beveled edge, 3/4" deep, 1 use		384	.021	L.F.	.24	.92		1.16	1.47
7100	1" deep, 1 use		384	.021	"	.42	.92		1.34	1.65
7200	4" wide aged cedar, 1 use		256	.031	SFCA	3.12	1.38		4.50	5.55
7300	4" variable depth rough cedar		224	.036		4.52	1.57		6.09	7.40
7500	Lintel or sill forms, 1 use		30	.267		2.62	11.75		14.37	21
7520	2 use		34	.235		1.44	10.40		11.84	17.55
7540	3 use		36	.222		1.05	9.80		10.85	16.25
7560	4 use	▼	37	.216	▼	.85	9.55		10.40	15.60
7800	Modular prefabricated plywood, based on 20 uses of purchased									
7820	forms, and 4 uses of bracing lumber									

3 11 Concrete Forming

3 11 13 – Structural Cast-In-Place Concrete Forming

3 11 13.85 Forms In Place, Walls		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs			Total Ind O&P
							Labor	Equipment	Total	
60	To 8' high	C-2	800	.060	SFCA	.90	2.58		3.48	4.95
50	Over 8' to 16' high		600	.080		.94	3.43		4.37	6.35
30	Pilasters, 1 use		270	.178		2.52	7.65		10.17	14.55
20	2 use		330	.145		1.39	6.25		7.64	11.15
40	3 use		370	.130		1.01	5.55		6.56	9.65
60	4 use		385	.125		.82	5.35		6.17	9.15
10	Steel framed plywood, based on 50 uses of purchased forms, and 4 uses of brocing lumber									
60	To 8' high	C-2	600	.080	SFCA	.74	3.43		4.17	6.10
60	Over 8' to 16' high		450	.107		.74	4.58		5.32	7.85
60	Over 16' to 20' high		400	.120		.74	5.15		5.89	8.75
75	For elevated walls, odd						10%			
80	For bottered walls, 1 side bottered, odd					10%	10%			
85	For bottered walls, 2 sides bottered, odd					15%	15%			

3 11 19 – Insulating Concrete Forming

3 11 19.10 Insulating Forms, Left In Place

INSULATING FORMS, LEFT IN PLACE										
S.F. is for exterior face, but includes forms for both faces (total R22)										
20	4" wall, straight block, 16" x 48" (5.33 S.F.)	G	2 Corp	90	.178	Eo.	17.60	7.85	25.45	31.50
10	90 corner block, exterior 16" x 38" x 22" (6.67 S.F.)	G		75	.213		19.95	9.40	29.35	36.50
20	45 corner block, exterior 16" x 34" x 18" (5.78 S.F.)	G		75	.213		20	9.40	29.40	36.50
00	6" wall, straight block, 16" x 48" (5.33 S.F.)	G		90	.178		17.85	7.85	25.70	31.50
10	90 corner block, exterior 16" x 32" x 24" (6.22 S.F.)	G		75	.213		21.50	9.40	30.90	38.50
20	45 corner block, exterior 16" x 26" x 18" (4.89 S.F.)	G		75	.213		18.95	9.40	28.35	35.50
30	Brick ledge block, 16" x 48" (5.33 S.F.)	G		80	.200		22.50	8.80	31.30	38
40	Toper top block, 16" x 48" (5.33 S.F.)	G		80	.200		21	8.80	29.80	36.50
00	8" wall, straight block, 16" x 48" (5.33 S.F.)	G		90	.178		18.40	7.85	26.25	32
10	90 corner block, exterior 16" x 34" x 26" (6.67 S.F.)	G		75	.213		23.50	9.40	32.90	40.50
20	45 corner block, exterior 16" x 28" x 20" (5.33 S.F.)	G		75	.213		20.50	9.40	29.90	37
30	Brick ledge block, 16" x 48" (5.33 S.F.)	G		80	.200		23	8.80	31.80	39
40	Toper top block, 16" x 48" (5.33 S.F.)	G		80	.200		21.50	8.80	30.30	37

3 11 19.60 Roof Deck Form Boards

ROOF DECK FORM BOARDS										
Includes bulb tee sub-purlins @ 32-5/8" O.C.										
70	Non-asbestos fiber cement, 5/16" thick		C-13	2950	.008	S.F.	2.66	.39	.04	3.09
00	Fiberglass, 1" thick			2700	.009		3.64	.42	.05	4.11
00	Wood fiber, 1" thick	G		2700	.009		2.20	.42	.05	2.67

3 11 23 – Permanent Stair Forming

3 11 23.75 Forms In Place, Stairs

FORMS IN PLACE, STAIRS										
R031113-40										
15	(Slant length x width), 1 use		C-2	165	.291	S.F.	4.66	12.50	17.16	24.50
50	2 use			170	.282		2.65	12.10	14.75	21.50
00	3 use	R031113-60		180	.267		1.99	11.45	13.44	19.80
50	4 use			190	.253		1.65	10.85	12.50	18.50
00	Alternate pricing method (1.0 L.F./S.F.), 1 use			100	.480	LF Rsr	4.66	20.50	25.16	36.50
50	2 use			105	.457		2.65	19.65	22.30	33
00	3 use			110	.436		1.99	18.75	20.74	31
50	4 use			115	.417		1.65	17.90	19.55	29.50
00	Stairs, cast on sloping ground (length x width), 1 use			220	.218	S.F.	1.86	9.35	11.21	16.45
25	2 use			232	.207		1.03	8.90	9.93	14.80
50	3 use			244	.197		.75	8.45	9.20	13.80

03 11 Concrete Forming

03 11 23 - Permanent Stair Forming

03 11 23.75 Forms in Place, Stairs	Crew	Daily Output	Labor-hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl. O&P
2100 4 use	C-2	256	.188	S.F.	.61	8.05		8.66	13.1

03 15 Concrete Accessories

03 15 05 - Concrete Forming Accessories

03 15 05.02 Anchor Bolt Accessories

0010 ANCHOR BOLT ACCESSORIES									
0015 For anchor bolts set in fresh concrete, see Section 05 05 23.05									
8150 Anchor bolt sleeve, plastic, 1" diam. bolts	1 Cap	60	.133	Eq.	7.90	5.90		13.80	17.2
8500 1-1/2" diameter		28	.286		14	12.60		26.60	35
8600 2" diameter		24	.333		17.55	14.70		32.25	42
8650 3" diameter	▼	20	.400	▼	32	17.65		49.65	62.5

03 15 05.12 Chamfer Strips

0010 CHAMFER STRIPS									
2000 Polyvinyl chloride, 1/2" wide with leg	1 Cap	535	.015	L.F.	.40	.66		1.06	1.4
2200 3/4" wide with leg		525	.015		.72	.67		1.39	1.8
2400 1" radius with leg		515	.016		.33	.68		1.01	1.4
2800 2" radius with leg		500	.016		.57	.71		1.28	1.7
5000 Wood, 1/2" wide		535	.015		.16	.66		.82	1.1
5200 3/4" wide		525	.015		.24	.67		.91	1.2
5400 1" wide	▼	515	.016	▼	.42	.68		1.10	1.5

03 15 05.15 Column Form Accessories

0010 COLUMN FORM ACCESSORIES									
1000 Column clamps, adjustable to 24" x 24", buy	G			Set	136			136	150
1100 Rent per month	G				17.85			17.85	19.6
1300 For sizes to 30" x 30", buy	G				147			147	162
1400 Rent per month	G				18.90			18.90	21
1600 For sizes to 36" x 36", buy	G				170			170	187
1700 Rent per month	G				21			21	23
2000 Bull winch (band iron) 36" x 36", buy	G				60			60	66
2100 Rent per month	G				6.10			6.10	6.7
2300 48" x 48", buy	G				61			61	67
2400 Rent per month	G				7.30			7.30	8.0
3000 Chain & wedge type 36" x 36", buy	G				83			83	91.5
3100 Rent per month	G				9.30			9.30	10.2
3300 60" x 60", buy	G				113			113	124
3400 Rent per month	G				13.40			13.40	14.7
4000 Friction collars 2'-6" diam., buy	G				845			845	930
4100 Rent per month	G				83			83	91.5
4300 4'-0" diam., buy	G				970			970	1,075
4400 Rent per month	G			▼	107			107	118

03 15 05.20 Dovetail Anchor System

0010 DOVETAIL ANCHOR SYSTEM									
0500 Anchor slot, galv., filled, 24 ga.	G	1 Cap	425	.019	L.F.	.72	.83	1.55	2.1
0600 20 ga.	G		400	.020		1.57	.88	2.45	3.0
0625 12 ga.	G		400	.020		1.83	.88	2.71	3.3
0900 26 ga. stainless steel, foam filled	G	▼	375	.021	▼	1.15	.94	2.09	2.5
1200 Brick anchor, corr., galv., 3-1/2" long, 16 ga.	G	1 Brk	10.50	.762	C	28	33.50	61.50	81
1300 12 ga.	G		10.50	.762		39.50	33.50	73	94
1500 Flat, galv., 3-1/2" long, 16 ga.	G		10.50	.762		43.50	33.50	77	98
1600 12 ga.	G	▼	10.50	.762	▼	61	33.50	94.50	118

03 15 Concrete Accessories

03 15 05 – Concrete Forming Accessories

03 15 05.20 Dovetail Anchor System		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
							Labor	Equipment		
2000	Cavity wall, corr., galv., 5" long, 16 ga.	[G] 1 Brk	10.50	.762	C	38	33.50		71.50	92.50
2100	12 ga.	[G]	10.50	.762		54.50	33.50		88	110
3000	Furring anchors, corr., galv., 1-1/2" long, 16 ga.	[G]	10.50	.762		14.70	33.50		48.20	66.50
3100	12 ga.	[G]	10.50	.762		75.50	33.50		59	78.50
6000	Stone anchors, 3-1/2" long, galv., 1/8" x 1" wide	[G]	10.50	.762		94.50	33.50		128	155
6100	1/4" x 1" wide	[G]	10.50	.762		108	33.50		141.50	170

03 15 05.25 Expansion Joints

03 15 05.25 EXPANSION JOINTS										
0010	Keyed, cold, 24 ga., incl. stakes, 3-1/2" high	[G] 1 Carp	200	.040	L.F.	.96	1.76		2.72	3.77
0050	4-1/2" high	[G]	200	.040		1.13	1.76		2.89	3.95
0100	5-1/2" high	[G]	195	.041		1.25	1.81		3.06	4.16
0150	7-1/2" high	[G]	190	.042		1.47	1.86		3.33	4.48
0160	9-1/2" high	[G]	185	.043		1.67	1.91		3.58	4.77
0300	Poured asphalt, plain, 1/2" x 1"	1 Clab	450	.018		.65	.62		1.27	1.68
0350	1" x 2"		400	.020		2.60	.70		3.30	3.94
0500	Neoprene, liquid, cold applied, 1/2" x 1"		450	.018		3	.62		3.62	4.26
0550	1" x 2"		400	.020		12	.70		12.70	14.30
0700	Polyurethane, poured, 2 part, 1/2" x 1"		400	.020		1.33	.70		2.03	2.54
0750	1" x 2"		350	.023		5.30	.80		6.10	7.10
0900	Rubberized asphalt, hot or cold applied, 1/2" x 1"		450	.018		.36	.62		.98	1.36
0950	1" x 2"		400	.020		1.45	.70		2.15	2.68
1100	Hot applied, fuel resistant, 1/2" x 1"		450	.018		.54	.62		1.16	1.55
1150	1" x 2"		400	.020		2.18	.70		2.88	3.47
2000	Premolded, bituminous fiber, 1/2" x 6"	1 Carp	375	.021		.44	.94		1.38	1.93
2050	1" x 12"		300	.027		2.01	1.18		3.19	4.02
2140	Concrete expansion joint, recycled paper and fiber, 1/2" x 6"	[G]	390	.021		.39	.90		1.29	1.82
2150	1/2" x 12"	[G]	360	.022		.78	.98		1.76	2.37
2250	Cork with resin binder, 1/2" x 6"		375	.021		.83	.94		1.77	2.36
2300	1" x 12"		300	.027		2.32	1.18		3.50	4.36
2500	Neoprene sponge, closed cell, 1/2" x 6"		375	.021		1.93	.94		2.87	3.57
2550	1" x 12"		300	.027		7.25	1.18		8.43	9.80
2750	Polyethylene foam, 1/2" x 6"		375	.021		.62	.94		1.56	2.13
2800	1" x 12"		300	.027		1.99	1.18		3.17	4
3000	Polyethylene backer rod, 3/8" diameter		460	.017		.05	.77		.82	1.23
3050	3/4" diameter		460	.017		.07	.77		.84	1.26
3100	1" diameter		460	.017		.14	.77		.91	1.33
3500	Polyurethane foam, with polybutylene, 1/2" x 1/2"		475	.017		.95	.74		1.69	2.19
3550	1" x 1"		450	.018		2.40	.78		3.18	3.85
3750	Polyurethane foam, regular, closed cell, 1/2" x 6"		375	.021		.70	.94		1.64	2.22
3800	1" x 12"		300	.027		2.50	1.18		3.68	4.56
4000	Polyvinyl chloride foam, closed cell, 1/2" x 6"		375	.021		1.90	.94		2.84	3.54
4050	1" x 12"		300	.027		6.55	1.18		7.73	9
4250	Rubber, gray sponge, 1/2" x 6"		375	.021		1.60	.94		2.54	3.21
4300	1" x 12"		300	.027		5.75	1.18		6.93	8.15
4400	Redwood heartwood, 1" x 4"		400	.020		1.16	.88		2.04	2.64
4450	1" x 6"		375	.021		1.74	.94		2.68	3.36
5000	For installation in walls, add						75%			
5250	For installation in boxouts, add						25%			

03 15 05.30 Hangers

03 15 05.30 HANGERS										
0010	Slab and beam form									
0500	Banding iron, 3/4" x 22 ga, 14 L.F. per lb. or									

03 15 Concrete Accessories

03 15 05 – Concrete Forming Accessories

03 15 05.30 Hangers

			Daily Crew	Output	Labor- Hours	Unit	Material	2012 Base Costs		Total	Total Inc O&P
								Labor	Equipment		
0550	1/2" x 14 ga, 7 L.F. per lb.	G				Lib.	1.30			1.30	1.4
1000	Fascia ties, coil type, to 24" long	G				C	370			370	405
1500	Frame ties to 8-1/8"	G					435			435	480
1550	8-1/8" to 10-1/8"	G					455			455	505
5000	Snap tie hanger, to 30" overall length, 3000#	G					370			370	405
5050	To 36" overall length	G					405			405	445
5100	To 48" overall length	G					480			480	530
5500	Steel beam hanger										
5600	Flange to 8-1/8"	G				C	435			435	480
5650	8-1/8" to 10-1/8"	G					455			455	505
6000	Tie hangers to 30" overall length, 4000#	G					420			420	460
6100	To 36" overall length	G					455			455	500
6500	Tie back hanger, up to 12-1/8" flange	G					1,175			1,175	1,275
8500	Wire, black annealed, 9 go	G				Cwt.	142			142	156
8600	16 go					"	171			171	189

03 15 05.35 Inserts

0010	INSERTS										
1000	Inserts, slotted nut type for 3/4" bolts, 4" long	G	1 Corp	84	.095	Ea.	17.10	4.20		21.30	25.5
2100	6" long	G		84	.095		19.25	4.20		23.45	27.5
2150	8" long	G		84	.095		25.50	4.20		29.70	35
2200	Slotted, strap type, 4" long	G		84	.095		18.50	4.20		22.70	27
2250	6" long	G		84	.095		21	4.20		25.20	29.5
2300	8" long	G		84	.095		27.50	4.20		31.70	37
2350	Strap for slotted insert, 4" long	G		84	.095		10.15	4.20		14.35	17.6
4100	6" long	G		84	.095		10.95	4.20		15.15	18.5
4150	8" long	G		84	.095		13.65	4.20		17.85	21.5
4200	10" long	G		84	.095		16.60	4.20		20.80	24.5
7000	Loop ferrule type										
7100	1/4" diameter bolt	G	1 Corp	84	.095	Ea.	1.96	4.20		6.16	8.6
7350	7/8" diameter bolt	G	"	84	.095	"	9.15	4.20		13.35	16.5
9000	Wedge type										
9100	For 3/4" diameter bolt	G	1 Corp	60	.133	Ea.	8.10	5.90		14	18
9800	Cut washers, black										
9900	3/4" bolt	G				Ea.	1.02			1.02	1.1
9950	For galvanized inserts, add						30%				

03 15 05.70 Shores

0010	SHORES										
0020	Erect and strip, by hand, horizontal members										
0500	Aluminum joists and stringers	G	2 Corp	60	.267	Ea.		11.75		11.75	18
0600	Steel, adjustable beams	G		45	.356			15.70		15.70	24
0700	Wood joists			50	.320			14.10		14.10	21.5
0800	Wood stringers			30	.533			23.50		23.50	36
1000	Vertical members to 10' high	G		55	.291			12.85		12.85	19.7
1050	To 13' high	G		50	.320			14.10		14.10	21.5
1100	To 16' high	G		45	.356			15.70		15.70	24
1500	Reshoring	G		1400	.011	S.F.	.50	.50		1	1.3
1600	Flying truss system	G	C-17D	9600	.009	SFCA		.40	.08	.48	.7
1760	Horizontal, aluminum joists, 6-1/4" high x 5' to 21' span, buy	G				L.F.	13.40			13.40	14.7
1770	Beams, 7-1/4" high x 4' to 30' span	G				"	15.65			15.65	17.7
1810	Horizontal, steel beam, W8x10, 7' span, buy	G				Ea.	47.50			47.50	52
1830	10' span	G					56			56	61.5
1920	15' span	G					96			96	106

3 15 Concrete Accessories

3 15 05 – Concrete Forming Accessories

3 15 05.70 Shores			Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
								Labor	Equipment		
40	20' span	G				Ea.	135			135	149
70	Steel stringer, W8x10, 4' to 16' span, buy	G				L.F.	5.60			5.60	6.15
50	Rent for job duration, aluminum joist @ 2' O.C., per ma	G				SF Flr.	.33			.33	.37
50	Steel W8x10	G					.14			.14	.15
60	Steel adjustable	G				↓	.14			.14	.15
10	#1 post shore, steel, 5'-7" to 9'-6" high, 10000# cap., buy	G				Ea.	128			128	141
50	#2 post shore, 7'-3" to 12'-10" high, 7800# capacity	G				↓	148			148	163
00	#3 post shore, 8'-10" to 16'-1" high, 3800# capacity	G				↓	162			162	178
10	Frame shoring systems, steel, 12000#/leg, buy										
40	Frame, 2' wide x 6' high	G				Ea.	93.50			93.50	103
50	X-brace	G					15.85			15.85	17.40
50	Base plate	G					15.50			15.50	17.05
00	Screw jack	G					33.50			33.50	36.50
50	U-head, 8" x 8"	G				↓	19.10			19.10	21

3 15 05.75 Sleeves and Chases

3 15 05.75 SLEEVES AND CHASES											
10	Plastic, 1 use, 12" long, 2" diameter		1 Corp	100	.080	Ea.	2.19	3.53		5.72	7.85
00	4" diameter			90	.089		6.45	3.92		10.37	13.15
00	6" diameter			75	.107		11.35	4.70		16.05	19.70
50	12" diameter		↓	60	.133	↓	32	5.90		37.90	44

3 15 05.80 Snap Ties

3 15 05.80 SNAP TIES, 8-1/4" L&W (Lumber and wedge)											
10	2250 lb., w/flat washer, 8" wall	G				C	78			78	86
00	12" wall	G					91			91	100
00	16" wall	G					105			105	116
00	18" wall	G					111			111	122
00	With plastic cone, 8" wall	G					71			71	78
00	12" wall	G					78			78	86
50	16" wall	G					86			86	94.50
00	18" wall	G					89			89	98
00	3350 lb., w/flat washer, 8" wall	G					111			111	122
50	12" wall	G					125			125	138
00	16" wall	G					143			143	157
50	18" wall	G					149			149	164
00	With plastic cone, 8" wall	G					111			111	122
00	12" wall	G					125			125	138
50	16" wall	G					143			143	157
00	18" wall	G				↓	149			149	164

3 15 05.85 Stair Tread Inserts

3 15 05.85 STAIR TREAD INSERTS											
10	Cast iron, abrasive, 3" wide	G	1 Corp	90	.089	L.F.	10	3.92		13.92	17.05
20	4" wide	G		80	.100		13.30	4.41		17.71	21.50
40	6" wide	G		75	.107		20	4.70		24.70	29.50
50	9" wide	G		70	.114		30	5.05		35.05	41
00	12" wide	G	↓	65	.123		40	5.45		45.45	52.50
00	Cast aluminum, compared to cast iron, deduct						10%				
00	Extruded aluminum safety tread, 3" wide	G	1 Corp	75	.107		11.45	4.70		16.15	19.85
50	4" wide	G		75	.107		15.30	4.70		20	24
00	6" wide	G		75	.107		23	4.70		27.70	32.50
50	9" wide to resurface stairs	G	↓	70	.114	↓	34.50	5.05		39.55	46
00	Cement fill for pan-type metal treads, plain		1 Cefi	115	.070	S.F.	1.89	2.95		4.84	6.40
50	Non-slip		"	100	.080	"	2.08	3.39		5.47	7.25

03 15 Concrete Accessories

03 15 05 - Concrete Forming Accessories

03 15 05.95 Wall and Foundation Form Accessories		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O8
							Labor	Equipment		
0010	WALL AND FOUNDATION FORM ACCESSORIES									
2000	Footings, turnbuckle form aligner	G			Ea.	15.90			15.90	17
2050	Spreaders for footer, adjustable	G			"	22			22	24
3000	Form oil, coverage varies greatly, minimum				Gal.	7.30			7.30	8
3050	Maximum				"	19.05			19.05	21
3500	Form patches, 1-3/4" diameter				C	45			45	49
3550	2-3/4" diameter				"	79			79	87
4000	Nail stakes, 3/4" diameter, 18" long	G			Ea.	2.96			2.96	3
4050	24" long	G				3.82			3.82	4
4200	30" long	G				4.91			4.91	5
4250	36" long	G				5.90			5.90	6

03 15 13 - Waterstops

03 15 13.50 Waterstops

0010	WATERSTOPS, PVC and Rubber									
0020	PVC, ribbed 3/16" thick, 4" wide	1 Carp	155	.052	L.F.	1.11	2.28		3.39	4
0050	6" wide		145	.055		2.05	2.43		4.48	6
0500	With center bulb, 6" wide, 3/16" thick		135	.059		1.75	2.61		4.36	5
0550	3/8" thick		130	.062		3.43	2.71		6.14	7
0600	9" wide x 3/8" thick		125	.064		5.05	2.82		7.87	9
0800	Dumbbell type, 6" wide, 3/16" thick		150	.053		1.83	2.35		4.18	5
0850	3/8" thick		145	.055		3.41	2.43		5.84	7
1000	9" wide, 3/8" thick, plain		130	.062		5.50	2.71		8.21	10
1050	Center bulb		130	.062		7.70	2.71		10.41	12
1250	Ribbed type, split, 3/16" thick, 6" wide		145	.055		1.79	2.43		4.22	5
1300	3/8" thick		130	.062		3.75	2.71		6.46	8
2000	Rubber, flat dumbbell, 3/8" thick, 6" wide		145	.055		8.60	2.43		11.03	13
2050	9" wide		135	.059		13.05	2.61		15.66	18
2500	Flat dumbbell split, 3/8" thick, 6" wide		145	.055		1.79	2.43		4.22	5
2550	9" wide		135	.059		3.75	2.61		6.36	8
3000	Center bulb, 1/4" thick, 6" wide		145	.055		7.50	2.43		9.93	12
3050	9" wide		135	.059		16.85	2.61		19.46	22
3500	Center bulb split, 3/8" thick, 6" wide		145	.055		9.10	2.43		11.53	13
3550	9" wide		135	.059		15.75	2.61		18.36	21
5000	Waterstop fittings, rubber, flat									
5010	Dumbbell or center bulb, 3/8" thick,									
5200	Field union, 6" wide	1 Carp	50	.160	Ea.	23	7.05		30.05	36
5250	9" wide		50	.160		29.50	7.05		36.55	43
5500	Flat cross, 6" wide		30	.267		37.50	11.75		49.25	59
5550	9" wide		30	.267		54	11.75		65.75	77
6000	Flat tee, 6" wide		30	.267		38.50	11.75		50.25	60
6050	9" wide		30	.267		52	11.75		63.75	75
6500	Flat ell, 6" wide		40	.200		37.50	8.80		46.30	54
6550	9" wide		40	.200		48.50	8.80		57.30	67
7000	Vertical tee, 6" wide		25	.320		29.50	14.10		43.60	54
7050	9" wide		25	.320		42	14.10		56.10	67
7500	Vertical ell, 6" wide		35	.229		28	10.10		38.10	46
7550	9" wide		35	.229		37.50	10.10		47.60	56

3 21 Reinforcement Bars

3 21 05 – Reinforcing Steel Accessories

3 21 05.10 Rebar Accessories				Daily Crew	Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Inc O&P
									Labor	Equipment		
010	REBAR ACCESSORIES											
030	Steel & plastic made from recycled materials	G										
100	Beam balsters (BB), lower, 1-1/2" high, plain steel	G					C.L.F.	51			51	56
102	Galvanized	G						61			61	67.50
104	Stainless tipped legs	G						480			480	530
106	Plastic tipped legs	G						55			55	60.50
108	Epoxy dipped	G						104			104	114
110	2" high, plain	G						55			55	60.50
120	Galvanized	G						66			66	72.50
140	Stainless tipped legs	G						485			485	535
160	Plastic tipped legs	G						56			56	61.50
162	Epoxy dipped	G						115			115	127
200	Upper (BBU), 1-1/2" high, plain steel	G						97			97	107
210	3" high	G						112			112	123
300	Beam bolster with plate (BBP), 1-1/2" high, plain steel	G						192			192	211
310	3" high	G						305			305	340
500	Slab balsters, continuous (SB), 1" high, plain steel	G						27			27	29.50
502	Galvanized	G						47			47	51.50
504	Stainless tipped legs	G						455			455	505
506	Plastic tipped legs	G						36			36	39.50
510	2" high, plain steel	G						29			29	32
515	Galvanized	G						59			59	65
520	Stainless tipped legs	G						460			460	505
525	Plastic tipped legs	G						41			41	45
530	Far balsters with wire runners (SBR), add	G						37			37	40.50
540	Far balsters with plates (SBP), add	G						85			85	93.50
700	Bag ties, 1 6 ga., plain, 4" long	G					C	3			3	3.30
710	5" long	G						4			4	4.40
720	6" long	G						3			3	3.30
730	7" long	G						4			4	4.40
200	High chairs, individual (HC), 3" high, plain steel	G						40			40	44
202	Galvanized	G						48			48	53
204	Stainless tipped legs	G						470			470	515
206	Plastic tipped legs	G						54			54	59.50
210	5" high, plain	G						58			58	64
212	Galvanized	G						69.50			69.50	76.50
214	Stainless tipped legs	G						490			490	535
216	Plastic tipped legs	G						73			73	80.50
220	8" high, plain	G						118			118	130
222	Galvanized	G						142			142	156
224	Stainless tipped legs	G						550			550	605
226	Plastic tipped legs	G						151			151	166
230	12" high, plain	G						273			273	300
232	Galvanized	G						325			325	360
234	Stainless tipped legs	G						705			705	775
236	Plastic tipped legs	G						282			282	310
400	Individual high chairs, with plate (HCP), 5" high	G						170			170	187
410	8" high	G						235			235	259
500	Bar chair (BC), 1-1/2" high, plain steel	G						26			26	28.50
520	Galvanized	G						37			37	40.50
530	Stainless tipped legs	G						455			455	500
540	Plastic tipped legs	G						39			39	43
550	Joist chair (JC), 3/4" x 5", plain steel	G						33			33	36.50

03 21 Reinforcement Bars

03 21 05 - Reinforcing Steel Accessories

03 21 05 - Reinforcing Steel Accessories		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl 08/27/10
03 21 05.10 Rebar Accessories										
1580	Galvanized	G			C	39.50			39.50	43.5
1600	Stainless tipped legs	G				465			465	510
1620	Plastic tipped legs	G				55			55	60
1630	Epoxy dipped	G				121			121	133
1700	Continuous high chairs (CHC), legs 8" O.C., 4" high, plain steel	G			C.L.F.	48			48	53
1705	Galvanized	G				57.50			57.50	63.5
1710	Stainless tipped legs	G				480			480	525
1715	Plastic tipped legs	G				95			95	105
1718	Epoxy dipped	G				87			87	95.5
1720	6" high, plain	G				69			69	76
1725	Galvanized	G				83			83	91
1730	Stainless tipped legs	G				500			500	550
1735	Plastic tipped legs	G				95			95	105
1738	Epoxy dipped	G				114			114	125
1740	8" high, plain	G				101			101	111
1745	Galvanized	G				121			121	133
1750	Stainless tipped legs	G				530			530	585
1755	Plastic tipped legs	G				151			151	166
1758	Epoxy dipped	G				173			173	190
1900	For continuous bottom wire runners, add	G				39			39	43
1940	For continuous bottom plate, add	G				172			172	189
2100	Paper tubing, 4' lengths, for #4 bar	G				69			69	76
2120	For #6 bar	G				81			81	89
2200	Screed chair base, 1/2" coil thread diam., 2-1/2" high, plain steel	G			C	281			281	310
2210	Galvanized	G				295			295	325
2220	5-1/2" high, plain	G				340			340	375
2250	Galvanized	G				355			355	390
2300	3/4" coil thread diam., 2-1/2" high, plain steel	G				355			355	390
2310	Galvanized	G				475			475	520
2320	5-1/2" high, plain steel	G				435			435	480
2350	Galvanized	G				610			610	670
2400	Screed holder, 1/2" coil thread diam. for pipe screed, plain steel, 6" long	G				340			340	375
2420	12" long	G				525			525	575
2500	3/4" coil thread diam. for pipe screed, plain steel, 6" long	G				490			490	540
2520	12" long	G				790			790	870
2700	Screw anchor for bolts, plain steel, 3/4" diameter x 4" long	G				465			465	510
2720	1" diameter x 6" long	G				760			760	835
2740	1-1/2" diameter x 8" long	G				955			955	1,050
2800	Screw anchor eye bolts, 3/4" x 7" long	G				3,975			3,975	4,375
2820	1" x 9" long	G				7,850			7,850	8,650
2840	1-1/2" x 14" long	G				19,900			19,900	21,900
2900	Screw anchor bolts, 3/4" x 9" long	G				1,375			1,375	1,525
2920	1" x 12" long	G				2,675			2,675	2,925
3001	Slab lifting inserts, single pickup, galv, 3/4" diam., 5" high	G				1,300			1,300	1,450
3010	6" high	G				1,325			1,325	1,475
3030	7" high	G				1,350			1,350	1,500
3100	1" diameter, 5-1/2" high	G				1,375			1,375	1,525
3120	7" high	G				1,425			1,425	1,575
3200	Double pickup lifting inserts, 1" diameter, 5-1/2" high	G				2,675			2,675	2,950
3220	7" high	G				2,950			2,950	3,250
3330	1-1/2" diameter, 5-1/2" high	G				3,250			3,250	3,575
3800	Subgrade chairs, #4 bar head, 3-1/2" high	G				30			30	33
3850	12" high	G				43			43	47

3 21 Reinforcement Bars

3 21 05 – Reinforcing Steel Accessories

21 05.10 Rebar Accessories				Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
									Labor	Equipment		
00	#6 bar head, 3-1/2" high	G					C	30			30	33
50	12" high	G						43			43	47.50
00	Subgrade stakes, no nail holes, 3/4" diameter, 12" long	G						264			264	290
50	24" long	G						380			380	420
00	7/8" diameter, 12" long	G						335			335	370
50	24" long	G						560			560	620
00	Tie wire, 16 ga. annealed steel	G					Cwt.	171			171	189
50	Tie wire holder, plastic case	G					Ea.	45.50			45.50	50
00	Aluminum case	G					"	60.50			60.50	66.50

21 05.75 Splicing Reinforcing Bars

SPlicing REINFORCING BARS				R032110-70								
Including holding bars in place while splicing												
00	Standard, self-aligning type, taper threaded, #4 bars	G		C-25	190	.168	Ea.	5.95	6.50		12.45	17.10
05	#5 bars	G			170	.188		7.25	7.25		14.50	19.75
10	#6 bars	G			150	.213		8.40	8.20		16.60	22.50
20	#7 bars	G			130	.246		9.75	9.45		19.20	26
00	#8 bars	G			115	.278		16.60	10.70		27.30	35.50
05	#9 bars	G		C-5	105	.533		18.15	25.50	6.65	50.30	68
10	#10 bars	G			95	.589		20	28.50	7.35	55.85	74.50
20	#11 bars	G			85	.659		21.50	31.50	8.20	61.20	82.50
30	#14 bars	G			65	.862		32	41.50	10.75	84.25	112
40	#18 bars	G			45	1.244		49	60	15.50	124.50	165
00	Transition self-aligning, taper threaded, #18-14	G			45	1.244		51	60	15.50	126.50	167
10	#18-11	G			45	1.244		52	60	15.50	127.50	168
20	#14-11	G			65	.862		34	41.50	10.75	86.25	114
40	#11-10	G			85	.659		23.50	31.50	8.20	63.20	85
50	#10-9	G			95	.589		22	28.50	7.35	57.85	77
60	#9-8	G		C-25	105	.305		20	11.75		31.75	41
80	#8-7	G			115	.278		18.60	10.70		29.30	38
90	#7-6	G			130	.246		11.75	9.45		21.20	28.50
00	Position coupler for curved bars, taper threaded, #4 bars	G			160	.200		27	7.70		34.70	42.50
10	#5 bars	G			145	.221		28.50	8.50		37	45.50
20	#6 bars	G			130	.246		34.50	9.45		43.95	53.50
30	#7 bars	G			110	.291		36.50	11.20		47.70	58.50
40	#8 bars	G			100	.320		38	12.30		50.30	61.50
50	#9 bars	G		C-5	90	.622		41.50	30	7.75	79.25	101
60	#10 bars	G			80	.700		44.50	33.50	8.70	86.70	112
70	#11 bars	G			70	.800		46.50	38.50	9.95	94.95	122
80	#14 bars	G			55	1.018		58	49	12.70	119.70	155
90	#18 bars	G			40	1.400		83.50	67.50	17.45	168.45	217
00	Transition position coupler for curved bars, taper threaded, #18-14	G			40	1.400		85.50	67.50	17.45	170.45	219
10	#18-11	G			40	1.400		86.50	67.50	17.45	171.45	220
20	#14-11	G			55	1.018		60	49	12.70	121.70	157
30	#11-10	G			70	.800		48.50	38.50	9.95	96.95	125
40	#10-9	G			80	.700		46.50	33.50	8.70	88.70	114
50	#9-8	G		C-25	90	.356		43.50	13.70		57.20	70
60	#8-7	G			100	.320		40	12.30		52.30	64
70	#7-6	G			110	.291		38.50	11.20		49.70	60.50
00	Sleeve type w/grout filler, for precast concrete, #6 bars	G			72	.444		21.50	17.10		38.60	52
02	#7 bars	G			64	.500		26	19.25		45.25	60
05	#8 bars	G			56	.571		30.50	22		52.50	69.50
07	#9 bars	G			48	.667		35.50	25.50		61	80.50

03 21 Reinforcement Bars

03 21 05 – Reinforcing Steel Accessories

03 21 05.75 Splicing Reinforcing Bars

03 21 05.75 Splicing Reinforcing Bars				Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bore Costs		Total	Total Incl O&M
									Labor	Equipment		
0810	#10 bors	G	C-5	40	1.400	Eq.		43	67.50	17.45	127.95	173
0900	#11 bars	G		32	1.750			48	84	22	154	209
0920	#14 bars	G	▼	24	2.333			74	112	29	215	291
1000	Sleeve type w/ferrous filler, for critical structures, #6 bors	G	C-25	72	.444			59	17.10		76.10	93
1210	#7 bars	G		64	.500			59.50	19.25		78.75	97
1220	#8 bars	G	▼	56	.571			63	22		85	105
1230	#9 bars	G	C-5	48	1.167			64.50	56	14.55	135.05	176
1240	#10 bors	G		40	1.400			69	67.50	17.45	153.95	201
1250	#11 bars	G		32	1.750			83	84	22	189	248
1260	#14 bars	G		24	2.333			104	112	29	245	325
1270	#18 bars	G	▼	16	3.500			106	168	43.50	317.50	430
2000	Weldable half coupler, taper threaded, #4 bors	G	E-16	120	.133			8.90	6.70	1.01	16.61	23
2100	#5 bars	G		112	.143			10.45	7.20	1.09	18.74	25
2200	#6 bars	G		104	.154			16.65	7.75	1.17	25.57	33
2300	#7 bars	G		96	.167			19.35	8.40	1.27	29.02	38
2400	#8 bars	G		88	.182			20	9.15	1.38	30.53	40
2500	#9 bars	G		80	.200			22	10.05	1.52	33.57	44
2600	#10 bars	G		72	.222			22.50	11.20	1.69	35.39	47
2700	#11 bars	G		64	.250			24.50	12.60	1.90	39	51
2800	#14 bars	G		56	.286			28	14.40	2.17	44.57	59
2900	#18 bars	G	▼	48	.333	▼		45.50	16.80	2.53	64.83	83

03 21 10 – Uncoated Reinforcing Steel

03 21 10.60 Reinforcing In Place

0015	REINFORCING IN PLACE, 50-60 ton lots, A615 Grade 60	R032110-10									
0020	Includes labor, but not material cost, to install accessories										
0030	Made from recycled materials	G									
0100	Beams & Girders, #3 to #7	G	4 Rodm	1.60	20	Ton	980	980		1,960	2,650
0150	#8 to #18 R032110-20	G		2.70	11.852		980	580		1,560	2,000
0200	Columns, #3 to #7	G		1.50	21.333		980	1,050		2,030	2,750
0250	#8 to #18	G		2.30	13.913		980	685		1,665	2,175
0300	Spirals, hot rolled, 8" to 15" diameter	G		2.20	14.545		1,525	715		2,240	2,850
0320	15" to 24" diameter R032110-40	G		2.20	14.545		1,475	715		2,190	2,750
0330	24" to 36" diameter	G		2.30	13.913		1,400	685		2,085	2,625
0340	36" to 48" diameter R032110-50	G		2.40	13.333		1,325	655		1,980	2,500
0360	48" to 64" diameter	G		2.50	12.800		1,475	630		2,105	2,600
0380	64" to 84" diameter R032110-70	G		2.60	12.308		1,525	605		2,130	2,675
0390	84" to 96" diameter	G		2.70	11.852		1,600	580		2,180	2,700
0400	Elevated slabs, #4 to #7 R032110-80	G		2.90	11.034		1,050	540		1,590	2,025
0500	Footings, #4 to #7	G		2.10	15.238		930	750		1,680	2,225
0550	#8 to #18	G		3.60	8.889		880	435		1,315	1,675
0600	Slab on grade, #3 to #7	G		2.30	13.913		930	685		1,615	2,125
0700	Walls, #3 to #7	G		3	10.667		930	525		1,455	1,850
0750	#8 to #18	G		4	8		930	395		1,325	1,650
0900	For other than 50 – 60 ton lots										
1000	Under 10 ton job, #3 to #7, add						25%	10%			
1010	#8 to #18, add						20%	10%			
1050	10 – 50 ton job, #3 to #7, add						10%				
1060	#8 to #18, add						5%				
1100	60 – 100 ton job, #3 to #7, deduct						5%				
1110	#8 to #18, deduct						10%				
1150	Over 100 ton job, #3 to #7, deduct						10%				
1160	#8 to #18, deduct						15%				

3 21 Reinforcement Bars

3 21 10 – Uncoated Reinforcing Steel

21 10.60 Reinforcing In Place		Crew	Doily Output	Labor-Hours	Unit	Material	2012 Bore Costs		Total	Total Incl O&P
							Labor	Equipment		
Reinforcing in place, A615 Grade 75, odd	G				Ton	90			90	99
Grade 90, odd						120			120	132
Unloading & sorting, add to above		C-5	100	.560			27	6.95	33.95	50
Crane cost for handling, add to above, minimum			135	.415			19.95	5.15	25.10	37
Average			92	.609			29.50	7.60	37.10	54.50
Maximum			35	1.600			77	19.90	96.90	143
Dowels, 2 feet long, deformed, #3	G	2 Rodm	520	.031	Eo.	.41	1.51		1.92	2.86
#4	G		480	.033		.72	1.64		2.36	3.40
#5	G		435	.037		1.12	1.81		2.93	4.12
#6	G		360	.044		1.62	2.18		3.80	5.25
Longer and heavier dowels, odd	G		725	.022	Lb.	.54	1.08		1.62	2.32
Smooth dowels, 12" long, 1/4" or 3/8" diameter	G		140	.114	Eo.	.70	5.60		6.30	9.70
5/8" diameter	G		125	.128		1.23	6.30		7.53	11.40
3/4" diameter	G		110	.145		1.52	7.15		8.67	13.05
Dowel sleeves for CIP concrete, 2-part system										
Sleeve base, plastic, for 5/8" smooth dowel sleeve, fasten to edge form		1 Rodm	200	.040	Eo.	.67	1.96		2.63	3.88
Sleeve, plastic, 12" long, for 5/8" smooth dowel, snap onto base			400	.020		1.56	.98		2.54	3.29
Sleeve base, for 3/4" smooth dowel sleeve			175	.046		.56	2.24		2.80	4.20
Sleeve, 12" long, for 3/4" smooth dowel			350	.023		1.23	1.12		2.35	3.14
Sleeve base, for 1" smooth dowel sleeve			150	.053		.86	2.62		3.48	5.15
Sleeve, 12" long, for 1" smooth dowel			300	.027		1.28	1.31		2.59	3.50
Dowel caps, visual warning only, plastic, #3 to #8		2 Rodm	800	.020		.29	.98		1.27	1.89
#8 to #18			750	.021		.64	1.05		1.69	2.38
Impalement protective, plastic, #4 to #9			800	.020		1.79	.98		2.77	3.54

21 10.70 Glass Fiber Reinforced Polymer Bars

GLASS FIBER REINFORCED POLYMER BARS										
Includes labor, but not material cost, to install accessories										
#2 bar, .043 lb./L.F.		4 Rodm	9500	.003	L.F.	.35	.17		.52	.65
#3 bar, .092 lb./L.F.			9300	.003		.48	.17		.65	.80
#4 bar, .160 lb./L.F.			9100	.004		.70	.17		.87	1.05
#5 bar, .258 lb./L.F.			8700	.004		1.05	.18		1.23	1.45
#6 bar, .372 lb./L.F.			8300	.004		1.38	.19		1.57	1.82
#7 bar, .497 lb./L.F.			7900	.004		1.73	.20		1.93	2.22
#8 bar, .620 lb./L.F.			7400	.004		2.32	.21		2.53	2.89
#9 bar, .800 lb./L.F.			6800	.005		2.92	.23		3.15	3.58
#10 bar, 1.08 lb./L.F.			5800	.006		3.50	.27		3.77	4.28
For Bends, odd per bend					Eo.	1.25			1.25	1.38

3 21 13 – Galvanized Reinforcement Steel Bars

21 13.10 Galvanized Reinforcing

GALVANIZED REINFORCING										
Add to uncoated reinforcing price for galvanizing					Ton	450			450	495

3 21 16 – Epoxy-Coated Reinforcement Steel Bars

21 16.10 Epoxy-Coated Reinforcing

EPOXY-COATED REINFORCING										
Add to uncoated reinforcing price for coating with epoxy					Ton	470			470	515

03 22 Fabric and Grid Reinforcing

03 22 05 - Uncoated Welded Wire Fabric

03 22 05.50 Welded Wire Fabric			Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
								Labor	Equipment		
0010	WELDED WIRE FABRIC ASTM A185	R032205-30									
0020	Includes labor, but not material cost, to install accessories										
0030	Made from recycled materials	G									
0050	Sheets										
0100	6 x 6 - W1.4 x W1.4 (10 x 10) 21 lb. per C.S.F.	G	2 Rodm	35	.457	C.S.F.	13.80	22.50		36.30	
0200	6 x 6 - W2.1 x W2.1 (8 x 8) 30 lb. per C.S.F.	G		31	.516		21.50	25.50		47	
0300	6 x 6 - W2.9 x W2.9 (6 x 6) 42 lb. per C.S.F.	G		29	.552		24	27		51	
0400	6 x 6 - W4 x W4 (4 x 4) 58 lb. per C.S.F.	G		27	.593		33	29		62	
0500	4 x 4 - W1.4 x W1.4 (10 x 10) 31 lb. per C.S.F.	G		31	.516		20.50	25.50		46	
0600	4 x 4 - W2.1 x W2.1 (8 x 8) 44 lb. per C.S.F.	G		29	.552		26	27		53	
0650	4 x 4 - W2.9 x W2.9 (6 x 6) 61 lb. per C.S.F.	G		27	.593		41.50	29		70.50	
0700	4 x 4 - W4 x W4 (4 x 4) 85 lb. per C.S.F.	G		25	.640		51.50	31.50		83	
0750	Rolls										
0800	2 x 2 - #14 galv., 21 lb./C.S.F., beam & column wrap	G	2 Rodm	6.50	2.462	C.S.F.	44	121		165	24
0900	2 x 2 - #12 galv. for gunite reinforcing	G	"	6.50	2.462	"	65	121		186	26

03 23 Stressed Tendon Reinforcing

03 23 05 - Prestressing Tendons

03 23 05.50 Prestressing Steel

0010	PRESTRESSING STEEL	R034136-90									
0100	Grouted strand, post-tensioned in field, 50' span, 100 kip	G	C-3	1200	.053	Lb.	3.86	2.42	.09	6.37	8
0150	300 kip	G		2700	.024		1.45	1.07	.04	2.56	3
0300	100' span, 100 kip	G		1700	.038		3.86	1.71	.06	5.63	7
0350	300 kip	G		3200	.020		3.27	.91	.03	4.21	5
0500	200' span, 100 kip	G		2700	.024		3.86	1.07	.04	4.97	5
0550	300 kip	G		3500	.018		3.26	.83	.03	4.12	4
0800	Grouted bars, 50' span, 42 kip	G		2600	.025		1.39	1.12	.04	2.55	3
0850	143 kip	G		3200	.020		1.32	.91	.03	2.26	2
1000	75' span, 42 kip	G		3200	.020		1.42	.91	.03	2.36	3
1050	143 kip	G		4200	.015		1.14	.69	.03	1.86	2
1200	Ungrouted strand, 50' span, 100 kip	G	C-4	1275	.025		.63	1.25	.02	1.90	2
1250	300 kip	G		1475	.022		.63	1.08	.02	1.73	2
1400	100' span, 100 kip	G		1500	.021		.63	1.06	.02	1.71	2
1450	300 kip	G		1650	.019		.63	.96	.02	1.61	2
1600	200' span, 100 kip	G		1500	.021		.63	1.06	.02	1.71	2
1650	300 kip	G		1700	.019		.63	.93	.02	1.58	2
1800	Ungrouted bars, 50' span, 42 kip	G		1400	.023		.49	1.13	.02	1.64	2
1850	143 kip	G		1700	.019		.49	.93	.02	1.44	2
2000	75' span, 42 kip	G		1800	.018		.49	.88	.02	1.39	1
2050	143 kip	G		2200	.015		.49	.72	.01	1.22	1
2220	Ungrouted single strand, 100' slab, 25 kip	G		1200	.027		.63	1.32	.03	1.98	2
2250	35 kip	G		1475	.022		.63	1.08	.02	1.73	2
3000	Slabs on grade, 0.5-inch diam. non-bonded strands, HDPE sheathed,										
3050	attached dead-end anchors, loose stressing-end anchors										
3100	25' x 30' slab, strands @ 36" O.C., placing		2 Rodm	2940	.005	S.F.	.59	.27		.86	1
3105	Stressing		C-4A	3750	.004			.21	.01	.22	
3110	42" O.C., placing		2 Rodm	3200	.005		.52	.25		.77	
3115	Stressing		C-4A	4040	.004			.19	.01	.20	
3120	48" O.C., placing		2 Rodm	3510	.005		.46	.22		.68	
3125	Stressing		C-4A	4390	.004			.18	.01	.19	
3150	25' x 40' slab, strands @ 36" O.C., placing		2 Rodm	3370	.005		.57	.23		.80	1

3 23 Stressed Tendon Reinforcing

3 23 05 – Prestressing Tendons

3 23 05.50 Prestressing Steel		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
5	Stressing	C-4A	4360	.004	S.F.		.18	.01	.19	.30
0	42" O.C., placing	2 Rodm	3760	.004		.49	.21		.70	.87
5	Stressing	C-4A	4820	.003			.16	.01	.17	.27
0	48" O.C., placing	2 Rodm	4090	.004		.44	.19		.63	.79
5	Stressing	C-4A	5190	.003			.15	.01	.16	.25
0	30' x 30' slab, strands @ 36" O.C., placing	2 Rodm	3260	.005		.57	.24		.81	1.01
5	Stressing	C-4A	4190	.004			.19	.01	.20	.31
0	42" O.C., placing	2 Rodm	3530	.005		.51	.22		.73	.93
5	Stressing	C-4A	4500	.004			.17	.01	.18	.29
0	48" O.C., placing	2 Rodm	3840	.004		.46	.20		.66	.83
5	Stressing	C-4A	4850	.003			.16	.01	.17	.27
0	30' x 40' slab, strands @ 36" O.C., placing	2 Rodm	3780	.004		.55	.21		.76	.94
5	Stressing	C-4A	4920	.003			.16	.01	.17	.26
0	42" O.C., placing	2 Rodm	4190	.004		.48	.19		.67	.83
5	Stressing	C-4A	5410	.003			.15	.01	.16	.24
0	48" O.C., placing	2 Rodm	4520	.004		.44	.17		.61	.76
5	Stressing	C-4A	5790	.003			.14	.01	.15	.23
0	30' x 50' slab, strands @ 36" O.C., placing	2 Rodm	4300	.004		.52	.18		.70	.86
5	Stressing	C-4A	5650	.003			.14	.01	.15	.23
0	42" O.C., placing	2 Rodm	4720	.003		.46	.17		.63	.78
5	Stressing	C-4A	6150	.003			.13	.01	.14	.21
0	48" O.C., placing	2 Rodm	5240	.003		.41	.15		.56	.69
5	Stressing	C-4A	6760	.002			.12	.01	.13	.20

3 24 Fibrous Reinforcing

3 24 05 – Reinforcing Fibers

3 24 05.30 Synthetic Fibers

SYNTHETIC FIBERS										
0	Synthetic fibers, add to concrete				Lb.	5.20			5.20	5.75
0	1-1/2 lb. per C.Y.				C.Y.	8.05			8.05	8.85

3 24 05.70 Steel Fibers

STEEL FIBERS										
0	Steel fibers, add to concrete	G			Lb.	.90			.90	.99
5	25 lb. per C.Y.	G			C.Y.	22.50			22.50	25
0	50 lb. per C.Y.	G				45			45	49.50
0	75 lb. per C.Y.	G				69.50			69.50	76
0	100 lb. per C.Y.	G				90			90	99

3 30 Cast-In-Place Concrete

3 30 53 – Miscellaneous Cast-In-Place Concrete

3 30 53.40 Concrete In Place

CONCRETE IN PLACE										
0	Including forms (4 uses), reinforcing steel, concrete, placement, and finishing unless otherwise indicated	R033105-10								
0	Beams (3500 psi), 5 kip per L.F., 10' span	R033105-20								
0	25' span	R033105-50								
0	Chimney foundations (5000 psi), industrial, minimum	R033105-65	C-14A	15.62	12.804	C.Y.	305	565	47.50	917.50
0	Maximum	R033105-70	"	18.55	10.782		320	480	40	840
0	Columns, square (4000 psi), 12" x 12", minimum reinforcing	R033105-85	C-14C	32.22	3.476		144	147	.83	291.83
0			"	23.71	4.724		168	200	1.13	369.13
0			C-14A	11.96	16.722		350	740	62	1,152

03 30 Cast-In-Place Concrete

03 30 53 - Miscellaneous Cast-In-Place Concrete

03 30 53.40 Concrete In Place		Crew	Daily Output	Labor Hours	Unit	Material	2012 Base Costs			Total	Total Incl O&M
							Labor	Equipment			
0720	Average reinforcing	C-14A	10.13	19.743	C.Y.	550	875	73.50	1,498.50	2,025	
0740	Maximum reinforcing		9.03	22.148		830	980	82.50	1,892.50	2,525	
0800	16" x 16", minimum reinforcing		16.22	12.330		274	545	46	865	1,200	
0820	Average reinforcing		12.57	15.911		470	705	59	1,234	1,675	
0840	Maximum reinforcing		10.25	19.512		730	865	72.50	1,667.50	2,200	
0900	24" x 24", minimum reinforcing		23.66	8.453		231	375	31.50	637.50	870	
0920	Average reinforcing		17.71	11.293		415	500	42	957	1,275	
0940	Maximum reinforcing		14.15	14.134		665	625	52.50	1,342.50	1,750	
1000	36" x 36", minimum reinforcing		33.69	5.936		205	263	22	490	655	
1020	Average reinforcing		23.32	8.576		365	380	32	777	1,025	
1040	Maximum reinforcing		17.82	11.223		620	495	42	1,157	1,500	
1100	Columns, round (4000 psi), tied, 12" diameter, minimum reinforcing		20.97	9.537		297	420	35.50	752.50	1,025	
1120	Average reinforcing		15.27	13.098		500	580	48.50	1,128.50	1,500	
1140	Maximum reinforcing		12.11	16.515		765	730	61.50	1,556.50	2,025	
1200	16" diameter, minimum reinforcing		31.49	6.351		272	281	23.50	576.50	740	
1220	Average reinforcing		19.12	10.460		475	465	39	979	1,275	
1240	Maximum reinforcing		13.77	14.524		720	645	54	1,419	1,850	
1300	20" diameter, minimum reinforcing		41.04	4.873		274	216	18.15	508.15	655	
1320	Average reinforcing		24.05	8.316		460	370	31	861	1,100	
1340	Maximum reinforcing		17.01	11.758		725	520	43.50	1,288.50	1,650	
1400	24" diameter, minimum reinforcing		51.85	3.857		257	171	14.35	442.35	560	
1420	Average reinforcing		27.06	7.391		460	325	27.50	812.50	1,050	
1440	Maximum reinforcing		18.29	10.935		710	485	40.50	1,235.50	1,575	
1500	36" diameter, minimum reinforcing		75.04	2.665		258	118	9.90	385.90	475	
1520	Average reinforcing		37.49	5.335		440	236	19.85	695.85	870	
1540	Maximum reinforcing		22.84	8.757		690	390	32.50	1,112.50	1,400	
1900	Elevated slab (4000 psi), flat slab with drops, 125 psf Sup. Load, 20' span	C-14B	38.45	5.410		239	239	19.30	497.30	655	
1950	30' span		50.99	4.079		261	180	14.55	455.55	580	
2100	Flat plate, 125 psf Sup. Load, 15' span		30.24	6.878		221	305	24.50	550.50	740	
2150	25' span		49.60	4.194		234	185	14.95	433.95	560	
2300	Waffle const., 30" domes, 125 psf Sup. Load, 20' span		37.07	5.611		239	248	20	507	670	
2350	30' span		44.07	4.720		224	209	16.85	449.85	585	
2500	One way joists, 30" pans, 125 psf Sup. Load, 15' span		27.38	7.597		281	335	27	643	840	
2550	25' span		31.15	6.677		267	295	24	586	775	
2700	One way beam & slab, 125 psf Sup. Load, 15' span		20.59	10.102		237	445	36	718	950	
2750	25' span		28.36	7.334		229	325	26	580	780	
2900	Two way beam & slab, 125 psf Sup. Load, 15' span		24.04	8.652		231	385	31	647	880	
2950	25' span		35.87	5.799		202	256	20.50	478.50	640	
3100	Elevated slabs, flat plate, including finish, not including forms or reinforcing										
3150	Regular concrete (4000 psi), 4" slab	C-8	2613	.021	S.F.	1.34	.84	.27	2.45	3	
3200	6" slab		2585	.022		1.97	.85	.28	3.10	3	
3250	2-1/2" thick floor fill		2685	.021		.87	.82	.27	1.96	2	
3300	Lightweight, 110# per C.F., 2-1/2" thick floor fill		2585	.022		1.16	.85	.28	2.29	2	
3400	Cellular concrete, 1-5/8" fill, under 5000 S.F.		2000	.028		.78	1.09	.36	2.23	2	
3450	Over 10,000 S.F.		2200	.025		.75	.99	.33	2.07	2	
3500	Add per floor for 3 to 6 stories high		31800	.002			.07	.02	.09		
3520	For 7 to 20 stories high		21200	.003			.10	.03	.13		
3540	Equipment pad (3000 psi), 3' x 3' x 6" thick	C-14H	45	1.067	Ea.	44	46.50	.61	91.11	121	
3550	4' x 4' x 6" thick		30	1.600		66	69.50	.91	136.41	161	
3560	5' x 5' x 8" thick		18	2.667		118	116	1.52	235.52	310	
3570	6' x 6' x 8" thick		14	3.429		159	149	1.95	309.95	405	
3580	8' x 8' x 10" thick		8	6		335	261	3.42	599.42	775	

3 30 Cast-In-Place Concrete

3 30 53 – Miscellaneous Cast-In-Place Concrete

30 53.40 Concrete In Place		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs			Total Incl O&P
							Labor	Equipment	Total	
10'	10' x 10' x 12" thick	C-14H	5	9.600	Ea.	575	415	5.45	995.45	1,275
00	Footings (3000 psi), spread under 1 C.Y.	C-14C	28	4	C.Y.	166	169	.96	335.96	445
25	1 C.Y. to 5 C.Y.		43	2.605		192	110	.63	302.63	380
50	Over 5 C.Y.		75	1.493		177	63	.36	240.36	293
00	Footings, strip (3000 psi), 18" x 9", unreinforced	C-14L	40	2.400		121	98.50	.70	220.20	285
20	18" x 9", reinforced	C-14C	35	3.200		145	135	.77	280.77	370
25	20" x 10", unreinforced	C-14L	45	2.133		118	87.50	.62	206.12	265
30	20" x 10", reinforced	C-14C	40	2.800		137	118	.67	255.67	335
35	24" x 12", unreinforced	C-14L	55	1.745		117	72	.51	189.51	240
40	24" x 12", reinforced	C-14C	48	2.333		136	98.50	.56	235.06	305
45	36" x 12", unreinforced	C-14L	70	1.371		114	56.50	.40	170.90	212
50	36" x 12", reinforced	C-14C	60	1.867		131	79	.45	210.45	267
00	Foundation mat (3000 psi), under 10 C.Y.		38.67	2.896		202	122	.70	324.70	415
50	Over 20 C.Y.		56.40	1.986		178	84	.48	262.48	325
00	Wall, free-standing (3000 psi), 8" thick, 8' high	C-14D	45.83	4.364		165	192	16.25	373.25	495
50	14' high		27.26	7.337		200	320	27.50	547.50	745
00	12" thick, 8' high		64.32	3.109		151	136	11.55	298.55	390
70	14' high		40.01	4.999		161	219	18.60	398.60	540
00	15" thick, 8' high		80.02	2.499		144	110	9.30	263.30	340
50	12' high		51.26	3.902		144	171	14.50	329.50	440
00	18' high		48.85	4.094		162	180	15.25	357.25	470
20	Handicap access ramp (4000 psi), railing both sides, 3' wide	C-14H	14.58	3.292	L.F.	305	143	1.88	449.88	555
25	5' wide		12.22	3.928		315	171	2.24	488.24	610
30	With 6" curb and rails both sides, 3' wide		8.55	5.614		315	244	3.20	562.20	725
35	5' wide		7.31	6.566		320	286	3.74	609.74	795
50	Slab on grade (3500 psi), not including finish, 4" thick	C-14E	60.75	1.449	C.Y.	118	63	.45	181.45	228
00	6" thick	"	92	.957	"	114	41.50	.30	155.80	190
01	Thickened slab edge (3500 psi), for slab on grade poured monolithically with slab; depth is in addition to slab thickness;									
02	formed vertical outside edge, earthen bottom and inside slope									
03	8" deep x 8" wide bottom, unreinforced	C-14L	2190	.044	L.F.	3.18	1.80	.01	4.99	6.25
10	8" x 8", reinforced	C-14C	1670	.067		5.50	2.83	.02	8.35	10.45
15	12" deep x 12" wide bottom, unreinforced	C-14L	1800	.053		6.55	2.19	.02	8.76	10.60
20	12" x 12", reinforced	C-14C	1310	.086		10.75	3.61	.02	14.38	17.40
25	16" deep x 16" wide bottom, unreinforced	C-14L	1440	.067		11.05	2.74	.02	13.81	16.40
30	16" x 16", reinforced	C-14C	1120	.100		16.10	4.23	.02	20.35	24
35	20" deep x 20" wide bottom, unreinforced	C-14L	1150	.083		16.85	3.43	.02	20.30	24
40	20" x 20", reinforced	C-14C	920	.122		23	5.15	.03	28.18	33.50
45	24" deep x 24" wide bottom, unreinforced	C-14L	930	.103		24	4.24	.03	28.27	32.50
50	24" x 24", reinforced	C-14C	740	.151		32	6.40	.04	38.44	45.50
51	Slab on grade (3500 psi), incl. troweled finish, not incl. forms or reinforcing, over 10,000 S.F., 4" thick	C-14F	3425	.021	S.F.	1.29	.84	.01	2.14	2.69
60	6" thick		3350	.021		1.89	.86	.01	2.76	3.38
40	8" thick		3184	.023		2.59	.91	.01	3.51	4.21
00	12" thick		2734	.026		3.88	1.06	.01	4.95	5.85
50	15" thick		2505	.029		4.88	1.15	.01	6.04	7.10
00	Slab on grade (3000 psi), incl. textured finish, not incl. forms or reinforcing, 4" thick	C-14G	2873	.019	S.F.	1.32	.77	.01	2.10	2.62
10	6" thick		2590	.022		2.07	.85	.01	2.93	3.57
20	8" thick		2320	.024		2.70	.95	.01	3.66	4.41
00	Lift slab in place above the foundation, incl. forms, reinforcing, concrete (4000 psi) and columns, minimum	C-14B	2113	.098	S.F.	6.55	4.35	.35	11.25	14.30
50	Average		1650	.126		7.15	5.55	.45	13.15	17

03 30 Cast-In-Place Concrete

03 30 53 – Miscellaneous Cast-In-Place Concrete

03 30 53.40 Concrete In Place		Daily Crew	Daily Output	Labor- Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
							Labor	Equipment		
5300	Maximum	C-14B	1500	.139	S.F.	7.80	6.15	.50	14.45	18.7
5500	Lightweight, ready mix, including screed finish only,									
5510	not including forms or reinforcing									
5550	1:4 (2500 psi) for structural roof decks	C-14B	260	.800	C.Y.	136	35.50	2.86	174.36	207
5600	1:6 (3000 psi) for ground slab with radiant heat	C-14F	92	.783		133	31.50	.30	164.80	194
5650	1:3:2 (2000 psi) with sand aggregate, roof deck	C-14B	260	.800		133	35.50	2.86	171.36	204
5700	Ground slab (2000 psi)	C-14F	107	.673		133	27	.26	160.26	187
5900	Pile caps (3000 psi), incl. forms and reinf., sq. or rect., under 10 C.Y.	C-14C	54.14	2.069		159	87.50	.50	247	310
5950	Over 10 C.Y.		75	1.493		152	63	.36	215.36	265
6000	Triangular or hexagonal, under 10 C.Y.		53	2.113		122	89.50	.51	212.01	273
6050	Over 10 C.Y.		85	1.318		138	55.50	.32	193.82	237
6200	Retaining walls (3000 psi), gravity, 4' high see Section 32 32	C-14D	66.20	3.021		140	133	11.25	284.25	370
6250	10' high		125	1.600		134	70	5.95	209.95	262
6300	Cantilever, level backfill loading, 8' high		70	2.857		154	125	10.65	289.65	375
6350	16' high		91	2.198		147	96.50	8.20	251.70	320
6800	Stairs (3500 psi), not including safety treads, free standing, 3'-6" wide	C-14H	83	.578	LF Nose	5.10	25	.33	30.43	44.5
6850	Cast on ground		125	.384	"	4.35	16.70	.22	21.27	30.5
7000	Stair landings, free standing		200	.240	S.F.	4.12	10.45	.14	14.71	20.5
7050	Cast on ground		475	.101	"	3.37	4.39	.06	7.82	10.5

03 31 Structural Concrete

03 31 05 – Normal Weight Structural Concrete

03 31 05.25 Concrete, Hand Mix

0010	CONCRETE, HAND MIX for small quantities or remote areas									
0050	Includes bulk local aggregate, bulk sand, bagged Portland cement,									
0060	and water, using gas powered cement mixer									
0125	2500 psi	C-30	135	.059	C.F.	3.60	2.08	1.19	6.87	8.4
0130	3000 psi		135	.059		3.88	2.08	1.19	7.15	8.8
0135	3500 psi		135	.059		4.03	2.08	1.19	7.30	8.9
0140	4000 psi		135	.059		4.21	2.08	1.19	7.48	9.1
0145	4500 psi		135	.059		4.41	2.08	1.19	7.68	9.3
0150	5000 psi		135	.059		4.74	2.08	1.19	8.01	9.7
0300	Using pre-bagged dry mix and wheelbarrow (80-lb. bag = 0.6 C.F.)									
0340	4000 psi	1 Clab	48	.167	C.F.	5.80	5.85		11.65	15.3

03 31 05.35 Normal Weight Concrete, Ready Mix

0010	NORMAL WEIGHT CONCRETE, READY MIX, delivered	R033105-10								
0012	Includes local aggregate, sand, Portland cement, and water									
0015	Excludes all additives and treatments	R033105-20								
0020	2000 psi				C.Y.	91.50			91.50	101
0100	2500 psi	R033105-30				94			94	103
0150	3000 psi					102			102	112
0200	3500 psi	R033105-40				99.50			99.50	110
0300	4000 psi					103			103	113
0350	4500 psi	R033105-50				106			106	116
0400	5000 psi					109			109	120
0411	6000 psi					124			124	136
0412	8000 psi					202			202	223
0413	10,000 psi					287			287	315
0414	12,000 psi					345			345	380
1000	For high early strength cement, add					10%				
1010	For structural lightweight with regular sand, add					25%				

3 31 Structural Concrete

3 31 05 – Normal Weight Structural Concrete

3 31 05.35 Normal Weight Concrete, Ready Mix		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
00	For winter concrete (hot water), add				C.Y.	4.25			4.25	4.68
00	For hot weather concrete (ice), add					9.35			9.35	10.25
10	For mid-range water reducer, add					4.13			4.13	4.54
20	For high-range water reducer/superplasticizer, add					6.35			6.35	6.95
30	For retarder, add					2.71			2.71	2.98
40	For non-Chloride accelerator, add					4.83			4.83	5.30
50	For Chloride accelerator, per 1%, add					3.28			3.28	3.61
60	For fiber reinforcing, synthetic (1 lb./C.Y.), add					6.65			6.65	7.30
00	For Saturday delivery, add					8.85			8.85	9.70
10	For truck holding/waiting time post 1st hour per load, add				Hr.	87.50			87.50	96.50
20	For short load (less than 4 C.Y.), odd per load				Eq.	112			112	124
00	For all lightweight aggregate, add				C.Y.	45%				

3 31 05.70 Placing Concrete

PLACING CONCRETE		R033105-70								
00	Includes labor and equipment to place, strike off and consolidate									
50	Beams, elevated, small beams, pumped	C-20	60	1.067	C.Y.		40	12.85	52.85	75.50
00	With crane and bucket	C-7	45	1.600			61	26	87	122
00	Large beams, pumped	C-20	90	.711			27	8.55	35.55	50.50
50	With crane and bucket	C-7	65	1.108			42	18.10	60.10	84
00	Columns, square or round, 12" thick, pumped	C-20	60	1.067			40	12.85	52.85	75.50
50	With crane and bucket	C-7	40	1.800			68.50	29.50	98	137
00	18" thick, pumped	C-20	90	.711			27	8.55	35.55	50.50
50	With crane and bucket	C-7	55	1.309			50	21.50	71.50	99.50
00	24" thick, pumped	C-20	92	.696			26	8.40	34.40	49
50	With crane and bucket	C-7	70	1.029			39	16.80	55.80	78
00	36" thick, pumped	C-20	140	.457			17.25	5.50	22.75	32.50
50	With crane and bucket	C-7	100	.720			27.50	11.75	39.25	55
00	Elevated slabs, less than 6" thick, pumped	C-20	140	.457			17.25	5.50	22.75	32.50
50	With crane and bucket	C-7	95	.758			29	12.40	41.40	57.50
00	6" to 10" thick, pumped	C-20	160	.400			15.10	4.82	19.92	28.50
50	With crane and bucket	C-7	110	.655			25	10.70	35.70	50
00	Slabs over 10" thick, pumped	C-20	180	.356			13.40	4.28	17.68	25
50	With crane and bucket	C-7	130	.554			21	9.05	30.05	42
00	Footings, continuous, shallow, direct chute	C-6	120	.400			14.65	.46	15.11	23
50	Pumped	C-20	150	.427			16.10	5.15	21.25	30
00	With crane and bucket	C-7	90	.800			30.50	13.10	43.60	61
00	Footings, continuous, deep, direct chute	C-6	140	.343			12.55	.39	12.94	19.60
50	Pumped	C-20	160	.400			15.10	4.82	19.92	28.50
00	With crane and bucket	C-7	110	.655			25	10.70	35.70	50
00	Footings, spread, under 1 C.Y., direct chute	C-6	55	.873			32	.99	32.99	50
50	Pumped	C-20	65	.985			37	11.85	48.85	69.50
00	With crane and bucket	C-7	45	1.600			61	26	87	122
00	Over 5 C.Y., direct chute	C-6	120	.400			14.65	.46	15.11	23
50	Pumped	C-20	150	.427			16.10	5.15	21.25	30
00	With crane and bucket	C-7	100	.720			27.50	11.75	39.25	55
00	Foundation mats, over 20 C.Y., direct chute	C-6	350	.137			5	.16	5.16	7.80
50	Pumped	C-20	400	.160			6.05	1.93	7.98	11.30
00	With crane and bucket	C-7	300	.240			9.15	3.92	13.07	18.20
00	Grade beams, direct chute	C-6	150	.320			11.70	.36	12.06	18.30
50	Pumped	C-20	180	.356			13.40	4.28	17.68	25
00	With crane and bucket	C-7	120	.600			23	9.80	32.80	46
00	High rise, for more than 5 stories, pumped, odd per story	C-20	2100	.030			1.15	.37	1.52	2.15

03 31 Structural Concrete

03 31 05 - Normal Weight Structural Concrete

03 31 05.70 Placing Concrete		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs			Total Incl O&G
							Labor	Equipment	Total	
3510	With crane and bucket, add per story	C-7	2100	.034	C.Y.		1.31	.56	1.87	2
3700	Pile caps, under 5 C.Y., direct chute	C-6	90	.533			19.55	.61	20.16	30
3750	Pumped	C-20	110	.582			22	7	29	41
3800	With crane and bucket	C-7	80	.900			34.50	14.70	49.20	68
3850	Pile cap, 5 C.Y. to 10 C.Y., direct chute	C-6	175	.274			10.05	.31	10.36	15
3900	Pumped	C-20	200	.320			12.05	3.85	15.90	22
3950	With crane and bucket	C-7	150	.480			18.30	7.85	26.15	36
4000	Over 10 C.Y., direct chute	C-6	215	.223			8.20	.25	8.45	12
4050	Pumped	C-20	240	.267			10.05	3.21	13.26	18
4100	With crane and bucket	C-7	185	.389			14.80	6.35	21.15	29
4300	Slab on grade, up to 6" thick, direct chute	C-6	110	.436			16	.50	16.50	25
4350	Pumped	C-20	130	.492			18.55	5.95	24.50	35
4400	With crane and bucket	C-7	110	.655			25	10.70	35.70	50
4600	Over 6" thick, direct chute	C-6	165	.291			10.65	.33	10.98	16
4650	Pumped	C-20	185	.346			13.05	4.17	17.22	24
4700	With crane and bucket	C-7	145	.497			18.90	8.10	27	38
4900	Walls, 8" thick, direct chute	C-6	90	.533			19.55	.61	20.16	30
4950	Pumped	C-20	100	.640			24	7.70	31.70	45
5000	With crane and bucket	C-7	80	.900			34.50	14.70	49.20	68
5050	12" thick, direct chute	C-6	100	.480			17.60	.55	18.15	27
5100	Pumped	C-20	110	.582			22	7	29	41
5200	With crane and bucket	C-7	90	.800			30.50	13.10	43.60	61
5300	15" thick, direct chute	C-6	105	.457			16.75	.52	17.27	26
5350	Pumped	C-20	120	.533			20	6.40	26.40	37
5400	With crane and bucket	C-7	95	.758	▼		29	12.40	41.40	57
5600	Wheeled concrete dumping, add to placing costs above									
5610	Walking cart, 50' haul, add	C-18	32	.281	C.Y.		9.95	1.77	11.72	17
5620	150' haul, add		24	.375			13.25	2.37	15.62	23
5700	250' haul, add	▼	18	.500			17.65	3.16	20.81	30
5800	Riding cart, 50' haul, add	C-19	80	.113			3.97	1.18	5.15	7
5810	150' haul, add	▼	60	.150			5.30	1.57	6.87	9
5900	250' haul, add	▼	45	.200	▼		7.05	2.10	9.15	13

03 35 Concrete Finishing

03 35 29 - Tooled Concrete Finishing

03 35 29.30 Finishing Floors

FINISHING FLOORS										
0010	Finishing requires that concrete first be placed, struck off & consolidated									
0015	Basic finishing for various unspecified flatwork									
0100	Bull float only	C-10	4000	.006	S.F.		.24		.24	
0125	Bull float & manual float		2000	.012			.48		.48	
0150	Bull float, manual float, & broom finish, w/edging & joints		1850	.013			.52		.52	
0200	Bull float, manual float & manual steel trowel	▼	1265	.019	▼		.76		.76	1.1
0210	For specified Random Access Floors in ACI Classes 1, 2, 3 and 4 to achieve									
0215	Composite Overall Floor Flatness and Levelness values up to F35/F25									
0250	Bull float, machine float & machine trowel (walk-behind)	C-10C	1715	.014	S.F.		.56	.03	.59	
0300	Power screed, bull float, machine float & trowel (walk-behind)	C-10D	2400	.010			.40	.05	.45	
0350	Power screed, bull float, machine float & trowel (ride-on)	C-10E	4000	.006	▼		.24	.06	.30	
0352	For specified Random Access Floors in ACI Classes 5, 6, 7 and 8 to achieve									
0354	Composite Overall Floor Flatness and Levelness values up to F50/F50									
0356	Add for two-dimensional restraightening after power float	C-10	6000	.004	S.F.		.16		.16	2

3 35 Concrete Finishing

3 35 29 – Tooled Concrete Finishing

3 35 29.30 Finishing Floors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
8	For specified Random or Defined Access Floors in ACI Class 9 to achieve									
0	Composite Overall Floor Flatness and Levelness values up to F100/F100									
2	Add for two-dimensional restroightening after bull float & power float	C-10	3000	.008	S.F.		.32		.32	.48
4	For specified Superflat Defined Access Floors in ACI Class 9 to achieve									
6	Minimum Floor Flatness and Levelness values of F100/F100									
8	Add for 2-dim'l restroightening after bull float, power float, power trowel	C-10	2000	.012	S.F.		.48		.48	.71
0	Integral topping and finish, using 1:1:2 mix, 3/16" thick	C-10B	1000	.040		.11	1.52	.25	1.88	2.68
2	1/2" thick		950	.042		.29	1.60	.26	2.15	3.02
4	3/4" thick		850	.047		.44	1.79	.29	2.52	3.50
6	1" thick		750	.053		.59	2.03	.33	2.95	4.07
8	Gronolithic topping, laid after, 1:1-1-1/2 mix, 1/2" thick		590	.068		.33	2.58	.42	3.33	4.72
0	3/4" thick		580	.069		.49	2.62	.43	3.54	4.96
2	1" thick		575	.070		.65	2.64	.43	3.72	5.20
4	2" thick		500	.080		1.30	3.04	.50	4.84	6.55
6	Heavy duty, 1:1-2, 3/4" thick, presthrunk, gray, 20 M.S.F.		320	.125		.74	4.75	.78	6.27	8.85
8	100 M.S.F.		380	.105		.44	4	.66	5.10	7.25
0	Exposed local aggregate finish, minimum	1 Cefi	625	.013		.23	.54		.77	1.05
2	Maximum		465	.017		.68	.73		1.41	1.82
4	Floor abrasives, .25 psf, aluminum oxide		850	.009		.45	.40		.85	1.09
6	Silicon carbide		850	.009		.70	.40		1.10	1.36
8	Floor hardeners, metallic, light service, .50 psf, odd		850	.009		.65	.40		1.05	1.31
0	Medium service, .75 psf		750	.011		.98	.45		1.43	1.74
2	Heavy service, 1.0 psf		650	.012		1.31	.52		1.83	2.21
4	Extra heavy, 1.5 psf		575	.014		1.96	.59		2.55	3.03
6	Non-metallic, light service, .50 psf		850	.009		.26	.40		.66	.87
8	Medium service, .75 psf		750	.011		.39	.45		.84	1.08
0	Heavy service, 1.00 psf		650	.012		.52	.52		1.04	1.34
2	Extra heavy, 1.50 psf		575	.014		.77	.59		1.36	1.72
4	Trap rock wearing surface for monolithic floors									
6	2.0 psf	C-10B	1250	.032	S.F.	.02	1.22	.20	1.44	2.08
8	Floor coloring, dusted on (0.6 psf), odd to above	1 Cefi	1300	.006		.67	.26		.93	1.11
0	(1.0 psf), odd to above	"	625	.013		1.11	.54		1.65	2.02
2	Colored powder only				Lb.	1.11			1.11	1.22
4	1/2" tapping using 0.6 psf powdered color	C-10B	590	.068	S.F.	4.98	2.58	.42	7.98	9.85
6	1/2" tapping using 1.0 psf powdered color	"	590	.068		5.45	2.58	.42	8.45	10.30
8	Dustproofing, solvent-based, 1 coat	1 Cefi	1900	.004		.27	.18		.45	.55
0	2 coats		1300	.006		.96	.26		1.22	1.44
2	Epoxy-based, 1 coat		1500	.005		.13	.23		.36	.48
4	2 coats		1500	.005		.27	.23		.50	.63
6	Stair finish, float		275	.029			1.23		1.23	1.81
8	Steel trowel finish		200	.040			1.69		1.69	2.49
0	Silicon carbide finish, .25 psf		150	.053		.45	2.26		2.71	3.82

3 35 29.35 Control Joints, Saw Cut

CONTROL JOINTS, SAW CUT										
Sawcut control joints in green concrete										
1" depth		C-27	2000	.008	L.F.	.03	.34	.07	.44	.62
1-1/2" depth			1800	.009		.05	.38	.08	.51	.70
2" depth			1600	.010		.07	.42	.09	.58	.79
Sawcut joint reservoir in cured concrete										
3/8" wide x 3/4" deep, with single saw blade		C-27	1000	.016	L.F.	.05	.68	.15	.88	1.22
1/2" wide x 1" deep, with double saw blades			900	.018		.10	.75	.16	1.01	1.40
3/4" wide x 1-1/2" deep, with double saw blades			800	.020		.20	.85	.19	1.24	1.67

03 35 Concrete Finishing

03 35 29 - Tooled Concrete Finishing

03 35 29.35 Control Joints, Saw Cut

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&M
							Labor	Equipment		
0190	Water blast joint to wash away laitance, 2 passes	C-29	2500	.003	L.F.		.11	.03	.14	
0200	Air blast joint to blow out debris and air dry, 2 passes	C-28	2000	.004	▼		.17	.01	.18	
0300	For backer rod, see Section 07 91 23.10									
0340	For joint sealant, see Sections 03 15 05.25 or 07 92 13.20									
0900	For replacement of joint sealant, see Section 07 01 90.81									

03 35 29.60 Finishing Walls

FINISHING WALLS										
0010	Break ties and patch voids	1 Cefi	540	.015	S.F.	.03	.63		.66	
0050	Burlap rub with grout		450	.018		.03	.75		.78	
0100	Carborundum rub, dry		270	.030			1.25		1.25	
0150	Wet rub	▼	175	.046			1.94		1.94	2
0300	Bush hammer, green concrete	B-39	1000	.048			1.78	.21	1.99	2
0350	Cured concrete	"	650	.074			2.74	.32	3.06	4
0600	Floot finish, 1/16" thick	1 Cefi	300	.027		.31	1.13		1.44	2
0700	Sandblast, light penetration	E-11	1100	.029		.74	1.15	.19	2.08	2
0750	Heavy penetration	"	375	.085	▼	1.49	3.38	.56	5.43	7
0850	Grind form fins flush	1 Clob	700	.011	L.F.		.40		.40	

03 35 33 - Stamped Concrete Finishing

03 35 33.50 Slab Texture Stamping

SLAB TEXTURE STAMPING										
0010	Stamping requires that concrete first be placed, struck off, consolidated, bull floated and free of bleed water. Decorative stamping tasks include:									
0060										
0100	Step 1 - first application of dry shake colored hardener	1 Cefi	6400	.001	S.F.	.39	.05		.44	
0110	Step 2 - bull float	▼	6400	.001			.05		.05	
0130	Step 3 - second application of dry shake colored hardener	▼	6400	.001		.19	.05		.24	
0140	Step 4 - bull float, manual float & steel trowel	3 Cefi	1280	.019			.79		.79	1
0150	Step 5 - application of dry shake colored release agent	1 Cefi	6400	.001		.09	.05		.14	
0160	Step 6 - place, tamp & remove mats	3 Cefi	2400	.010		1.41	.42		1.83	2
0170	Step 7 - touch up edges, mat joints & simulated grout lines	1 Cefi	1280	.006			.26		.26	
0300	Alternate stamping estimating method includes all tasks above	4 Cefi	800	.040		2.09	1.69		3.78	4
0400	Step 8 - pressure wash @ 3000 psi after 24 hours	1 Cefi	1600	.005			.21		.21	
0500	Step 9 - roll 2 coats cure/seal compound when dry	"	800	.010	▼	.53	.42		.95	1

03 35 43 - Polished Concrete Finishing

03 35 43.10 Polished Concrete Floors

POLISHED CONCRETE FLOORS										
0010	Processing of cured concrete to include grinding, honing,									
0015	and polishing of interior floors with 22" segmented diamond									
0020	planetary floor grinder (2 passes in different directions per grit)									
0100	Removal of pre-existing coatings, dry, with carbide discs using									
0105	dry vacuum pick-up system, final hand sweeping									
0110	Glue, adhesive or tar	J-4	1.60	15	M.S.F.	19.20	600	114	733.20	1,050
0120	Paint, epoxy, 1 coat	▼	3.60	6.667	▼	19.20	266	50.50	335.70	470
0130	2 coats	▼	1.80	13.333	▼	19.20	530	101	650.20	930
0200	Grinding and edging, wet, including wet vac pick-up and auto									
0205	scrubbing between grit changes									
0210	40-grit diamond/metal matrix	J-4A	1.60	20	M.S.F.	31	775	226	1,032	1,450
0220	80-grit diamond/metal matrix	▼	2	16	▼	31	620	180	831	1,150
0230	120-grit diamond/metal matrix	▼	2.40	13.333	▼	31	515	150	696	975
0240	200-grit diamond/metal matrix	▼	2.80	11.429	▼	31	445	129	605	840
0300	Spray on dye or stain (1 coat)	1 Cefi	16	.500		271	21		292	330
0400	Spray on densifier/hardener (2 coats)	"	8	1	▼	296	42.50		338.50	390

3 35 Concrete Finishing

3 35 43 – Polished Concrete Finishing

3 35 43.10 Polished Concrete Floors	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
Auto scrubbing after 2nd coat, when dry	J-4B	16	.500	M.S.F.		17.55	11.15	28.70	39.50
Honing and edging, wet, including wet vac pick-up and auto scrubbing between grit changes									
100-grit diamond/resin matrix	J-4A	2.80	11.429	M.S.F.	31	445	129	605	840
200-grit diamond/resin matrix	"	2.80	11.429	"	31	445	129	605	840
Dry, including dry vacuum pick-up system, final hand sweeping									
400-grit diamond/resin matrix	J-4A	2.80	11.429	M.S.F.	31	445	129	605	840
Polishing and edging, dry, including dry vac pick-up and hand sweeping between grit changes									
800-grit diamond/resin matrix	J-4A	2.80	11.429	M.S.F.	31	445	129	605	840
1500-grit diamond/resin matrix	"	2.80	11.429	"	31	445	129	605	840
3000-grit diamond/resin matrix	↓	2.80	11.429	↓	31	445	129	605	840
Auto scrubbing after final polishing step	J-4B	16	.500	↓		17.55	11.15	28.70	39.50

3 37 Specialty Placed Concrete

3 37 13 – Shotcrete

3 37 13.30 Gunit (Dry-Mix)

GUNIT (DRY-MIX)									
Typical in place, 1" layers, no mesh included	C-16	2000	.028	S.F.	.33	1.09	.15	1.57	2.19
Mesh for gunit 2 x 2, #12	2 Rodm	800	.020		.65	.98		1.63	2.29
#4 reinforcing bars @ 6" each way	"	500	.032		1.64	1.57		3.21	4.31
Typical in place, including mesh, 2" thick, minimum	C-16	1000	.056		1.31	2.19	.30	3.80	5.10
Maximum		500	.112		1.31	4.38	.60	6.29	8.70
4" thick, minimum		750	.075		1.96	2.92	.40	5.28	7
Maximum	↓	350	.160		1.96	6.25	.86	9.07	12.55
Prepare old walls, no scaffolding, minimum	C-10	1000	.024			.96		.96	1.43
Maximum	"	275	.087			3.48		3.48	5.20
For high finish requirement or close tolerance, add, minimum						50%			
Maximum						110%			

3 37 13.60 Shotcrete (Wet-Mix)

SHOTCRETE (WET-MIX)									
Wet mix, placed @ up to 12 C.Y. per hour, 3000 psi	C-8C	80	.600	C.Y.	106	23	5.35	134.35	158
Up to 35 C.Y. per hour	C-8E	240	.200	"	95.50	7.65	2.06	105.21	119
Fiber reinforced, 1" thick	C-8C	1740	.028	S.F.	.79	1.06	.25	2.10	2.76
2" thick		900	.053		1.58	2.06	.47	4.11	5.40
3" thick		825	.058		2.38	2.24	.52	5.14	6.60
4" thick	↓	750	.064	↓	3.17	2.47	.57	6.21	7.85

3 39 Concrete Curing

3 39 13 – Water Concrete Curing

3 39 13.50 Water Curing

WATER CURING									
With burlap, 4 uses assumed, 7.5 oz.	2 Clob	55	.291	C.S.F.	11.80	10.20		22	28.50
10 oz.	"	55	.291	"	21	10.20		31.20	39
Curing blankets, 1" to 2" thick, buy, minimum				S.F.	.34			.34	.37
Maximum				"	.51			.51	.56

03 39 Concrete Curing

03 39 23 - Membrane Concrete Curing

03 39 23.13 Chemical Compound Membrane Concrete Curing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
							Labor	Equipment		
0010	CHEMICAL COMPOUND MEMBRANE CONCRETE CURING									
0300	Sprayed membrane curing compound	2 Clab	95	.168	C.S.F.	7.45	5.90		13.35	17
0700	Curing compound, solvent based, 400 S.F./gal., 55 gallon lats				Gal.	20			20	22
0720	5 gallon lats					27			27	29
0800	Curing compound, water based, 250 S.F./gal., 55 gallon lats					19.80			19.80	22
0820	5 gallon lats					23			23	25

03 39 23.23 Sheet Membrane Concrete Curing

0010	SHEET MEMBRANE CONCRETE CURING									
0200	Curing blanket, burlap/poly, 2-ply	2 Clab	70	.229	C.S.F.	17.10	8		25.10	31

03 41 Precast Structural Concrete

03 41 05 - Precast Concrete Members

03 41 05.10 Precast Beams

0010	PRECAST BEAMS	R034105-30								
0011	L-shaped, 20' span, 12" x 20"	C-11	32	2.250	Eq.	1,900	109	57	2,066	2,350
1000	Inverted tee beams, add to above, small beams					15%				
1050	Large beams					20%				
1200	Rectangular, 20' span, 12" x 20"	C-11	32	2.250		1,425	109	57	1,591	1,825
1250	18" x 36"		24	3		2,625	146	76	2,847	3,200
1300	24" x 44"		22	3.273		3,625	159	83	3,867	4,375
1400	30' span, 12" x 36"		24	3		3,300	146	76	3,522	3,950
1450	18" x 44"		20	3.600		4,725	175	91.50	4,991.50	5,600
1500	24" x 52"		16	4.500		6,300	218	114	6,632	7,450
1600	40' span, 12" x 52"		20	3.600		6,100	175	91.50	6,366.50	7,100
1650	18" x 52"		16	4.500		7,275	218	114	7,607	8,500
1700	24" x 52"		12	6		8,425	291	152	8,868	9,925
2000	"T" shaped, 20' span, 12" x 20"		32	2.250		2,475	109	57	2,641	2,975
2050	18" x 36"		24	3		4,475	146	76	4,697	5,250
2100	24" x 44"		22	3.273		6,200	159	83	6,442	7,200
2200	30' span, 12" x 36"		24	3		5,575	146	76	5,797	6,450
2250	18" x 44"		20	3.600		8,000	175	91.50	8,266.50	9,200
2300	24" x 52"		16	4.500		10,700	218	114	11,032	12,300
2500	40' span, 12" x 52"		20	3.600		10,300	175	91.50	10,566.50	11,700
2550	18" x 52"		16	4.500		12,400	218	114	12,732	14,100
2600	24" x 52"		12	6		14,300	291	152	14,743	16,400

03 41 05.15 Precast Columns

0010	PRECAST COLUMNS	R034105-30								
0020	Rectangular to 12' high, small columns	C-11	120	.600	L.F.	100	29	15.25	144.25	177
0050	Large columns		96	.750		173	36.50	19.05	228.55	275
0300	24' high, small columns		192	.375		100	18.20	9.55	127.75	152
0350	Large columns		144	.500		173	24.50	12.70	210.20	247

03 41 05.25 Precast Joists

0010	PRECAST JOISTS	R034105-30								
0015	40 psf L.L., 6" deep for 12' spans	C-12	600	.080	L.F.	16.65	3.48	1.02	21.15	25
0050	8" deep for 16' spans		575	.083		27.50	3.64	1.06	32.20	37
0100	10" deep for 20' spans		550	.087		48.50	3.80	1.11	53.41	60.5
0150	12" deep for 24' spans		525	.091		66.50	3.98	1.17	71.65	80.5

03 41 Precast Structural Concrete

03 41 13 – Precast Concrete Hollow Core Planks

03 41 13.50 Precast Slab Planks		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	Bare Costs Equipment	Total	Total Incl O&P
010	PRECAST SLAB PLANKS	R034105-30								
020	Prestressed roof/floor members, grouted, solid, 4" thick	C-11	2400	.030	S.F.	6.05	1.46	.76	8.27	10
050	6" thick		2800	.026		6.50	1.25	.65	8.40	10.05
100	Hollow, 8" thick		3200	.023		7.15	1.09	.57	8.81	10.35
150	10" thick		3600	.020		7.40	.97	.51	8.88	10.40
200	12" thick	▼	4000	.018	▼	7.90	.87	.46	9.23	10.70

03 41 16 – Precast Concrete Slabs

03 41 16.20 Precast Concrete Channel Slabs

010	PRECAST CONCRETE CHANNEL SLABS									
035	Lightweight concrete channel slab, long runs, 2-3/4" thick	C-12	1575	.030	S.F.	8.25	1.33	.39	9.97	11.55
075	3-3/4" thick		1550	.031		8.55	1.35	.39	10.29	11.90
075	4-3/4" thick		1525	.031		9.25	1.37	.40	11.02	12.75
275	Short pieces, 2-3/4" thick		785	.061		12.40	2.66	.78	15.84	18.55
375	3-3/4" thick		770	.062		12.85	2.71	.79	16.35	19.15
475	4-3/4" thick	▼	762	.063	▼	13.90	2.74	.80	17.44	20.50

03 41 16.50 Precast Lightweight Concrete Plank

010	PRECAST LIGHTWEIGHT CONCRETE PLANK									
015	Lightweight plank, noiloble, T&G, 2" thick	C-12	1800	.027	S.F.	7.25	1.16	.34	8.75	10.15
150	For premium ceiling finish, add				"	10%				
200	For sloping roofs, slope over 4 in 12, add						25%			
250	Slope over 6 in 12, add						150%			

03 41 23 – Precast Concrete Stairs

03 41 23.50 Precast Stairs

010	PRECAST STAIRS									
020	Precast concrete treads on steel stringers, 3' wide	C-12	75	.640	Riser	129	28	8.15	165.15	194
030	Front entrance, 5' wide with 48" platform, 2 risers		16	3	Flight	485	131	38.50	654.50	770
0350	5 risers		12	4		765	174	51	990	1,175
0500	6' wide, 2 risers		15	3.200		535	139	41	715	850
0550	5 risers		11	4.364		845	190	55.50	1,090.50	1,275
0700	7' wide, 2 risers		14	3.429		685	149	43.50	877.50	1,025
0750	5 risers	▼	10	4.800		1,125	209	61	1,395	1,650
200	Basement entrance stairs, steel bulkhead doors, minimum	B-51	22	2.182		1,400	77	9.60	1,486.60	1,675
250	Maximum	"	11	4.364	▼	2,350	154	19.20	2,523.20	2,825

03 41 33 – Precast Structural Pretensioned Concrete

03 41 33.60 Tees

010	TEES	R034105-30								
020	Quad tee, short spans, roof	C-11	7200	.010	S.F.	7.90	.49	.25	8.64	9.75
050	Floor		7200	.010		7.90	.49	.25	8.64	9.75
200	Double tee, floor members, 60' span		8400	.009		9.40	.42	.22	10.04	11.30
250	80' span		8000	.009		12.15	.44	.23	12.82	14.35
300	Roof members, 30' span		4800	.015		7.90	.73	.38	9.01	10.40
350	50' span		6400	.011		8.65	.55	.29	9.49	10.75
400	Wall members, up to 55' high		3600	.020		11.70	.97	.51	13.18	15.10
500	Single tee roof members, 40' span		3200	.023		10.65	1.09	.57	12.31	14.20
550	80' span		5120	.014		12.10	.68	.36	13.14	14.85
600	100' span		6000	.012		17.70	.58	.30	18.58	21
650	120' span	▼	6000	.012	▼	19.35	.58	.30	20.23	23
000	Double tees, floor members									
100	Lightweight, 20" x 8' wide, 45' span	C-11	20	3.600	Eq.	3,125	175	91.50	3,391.50	3,825
150	24" x 8' wide, 50' span	▼	18	4	▼	3,475	194	102	3,771	4,275

03 41 Precast Structural Concrete

03 41 33 – Precast Structural Pretensioned Concrete

03 41 33.60 Tees		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total	Total Incl O&P
							Labor	Equipment			
1200	32" x 10' wide, 60' span	C-11	16	4,500	Ea.	5,200	218	114		5,532	6,222
1250	Standard weight, 12" x 8' wide, 20' span		22	3,273		1,250	159	83		1,492	1,739
1300	16" x 8' wide, 25' span		20	3,600		1,575	175	91.50		1,841.50	2,116
1350	18" x 8' wide, 30' span		20	3,600		1,900	175	91.50		2,166.50	2,441
1400	20" x 8' wide, 45' span		18	4		2,825	194	102		3,121	3,571
1450	24" x 8' wide, 50' span		16	4,500		3,150	218	114		3,482	3,971
1500	32" x 10' wide, 60' span	▼	14	5,143	▼	4,725	249	131		5,105	5,771
2000	Roof members										
2050	Lightweight, 20" x 8' wide, 40' span	C-11	20	3,600	Ea.	2,775	175	91.50		3,041.50	3,451
2100	24" x 8' wide, 50' span		18	4		3,475	194	102		3,771	4,271
2150	32" x 10' wide, 60' span		16	4,500		5,200	218	114		5,532	6,222
2200	Standard weight, 12" x 8' wide, 30' span		22	3,273		1,900	159	83		2,142	2,441
2250	16" x 8' wide, 30' span		20	3,600		1,975	175	91.50		2,241.50	2,531
2300	18" x 8' wide, 30' span		20	3,600		2,075	175	91.50		2,341.50	2,716
2350	20" x 8' wide, 40' span		18	4		2,525	194	102		2,821	3,221
2400	24" x 8' wide, 50' span		16	4,500		3,150	218	114		3,482	3,971
2450	32" x 10' wide, 60' span	▼	14	5,143	▼	4,725	249	131		5,105	5,771

03 41 36 – Precast Structural Post-Tensioned Concrete

03 41 36.50 Post-Tensioned Jobs

0010	POST-TENSIONED JOBS	R034105-30									
0100	Post-tensioned in place, small job	R034136-90	C-17B	8.50	9.647	C.Y.	1,150	440	47	1,637	2,000
0200	Large job		"	10	8.200	"	870	375	40	1,285	1,571

03 45 Precast Architectural Concrete

03 45 13 – Faced Architectural Precast Concrete

03 45 13.50 Precast Wall Panels

0010	PRECAST WALL PANELS	R034513-10									
0050	Uninsulated 4" thick, smooth gray										
0150	Low rise, 4' x 8' x 4" thick	C-11	320	.225	S.F.	21.50	10.90	5.70		38.10	48.5
0210	8' x 8', 4" thick		576	.125		21	6.05	3.18		30.23	37.5
0250	8' x 16' x 4" thick		1024	.070		21	3.41	1.79		26.20	31
0600	High rise, 4' x 8' x 4" thick		288	.250		21.50	12.15	6.35		40	51.5
0650	8' x 8' x 4" thick		512	.141		21	6.80	3.57		31.37	39
0700	8' x 16' x 4" thick		768	.094		21	4.55	2.38		27.93	33.5
0750	20' x 10', 6" thick, smooth gray	▼	1400	.051		35.50	2.49	1.31		39.30	45
0800	Insulated panel, 2" polystyrene, add					1				1	1
0850	2" urethane, add					.78				.78	
1200	Finishes, white, add					2.87				2.87	3
1250	Exposed aggregate, add					1.88				1.88	2
1300	Granite faced, domestic, add					29.50				29.50	32.5
1350	Brick faced, modular, red, add				▼	8.75				8.75	9
2200	Fiberglass reinforced cement with urethane core										
2210	R20, 8' x 8', minimum	E-2	750	.075	S.F.	22	3.60	2		27.60	32
2220	Maximum	"	600	.093	"	33	4.50	2.49		39.99	46

3 47 Site-Cast Concrete

3 47 13 – Tilt-Up Concrete

47 13.50 Tilt-Up Wall Panels				Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs			Total Inc O&P
									Labor	Equipment	Total	
10	TILT-UP WALL PANELS			R034713-20								
15	Wall panel construction, walls only, 5-1/2" thick			C-14	1600	.090	S.F.	5.25	3.89	.97	10.11	12.85
00	7-1/2" thick				1550	.093		6.55	4.01	1	11.56	14.50
00	Walls and columns, 5-1/2" thick walls, 12" x 12" columns				1565	.092		7.90	3.97	.99	12.86	15.95
50	7-1/2" thick wall, 12" x 12" columns				1370	.105	▼	9.70	4.54	1.13	15.37	18.90
00	Columns only, site precast, minimum				200	.720	L.F.	13.15	31	7.75	51.90	71
50	Maximum			▼	105	1.371	"	16.45	59	14.80	90.25	126

3 48 Precast Concrete Specialties

3 48 43 – Precast Concrete Trim

3 48 43.40 Precast Lintels

10	PRECAST LINTELS, smooth gray, prestressed, stock units only												
00	4" wide, 8" high, x 4' long				D-10	28	1.143	Eq.	22.50	49.50	16	88	118
50	8' long					24	1.333		57.50	58	18.70	134.20	172
00	6" wide, 8" high, x 4' long					26	1.231		33	53.50	17.25	103.75	135
50	10' long					22	1.455		88	63	20.50	171.50	215
00	8" wide, 8" high, x 4' long					24	1.333		41	58	18.70	117.70	154
50	12' long				▼	20	1.600		134	69.50	22.50	226	278
75	For custom sizes, types, colors, or finishes of precast lintels, add												
								▼	150%				

3 48 43.90 Precast Window Sills

10	PRECAST WINDOW SILLS											
00	Precast concrete, 4" tapers to 3", 9" wide	D-1	70	.229	L.F.	12.25	9.10				21.35	27.50
50	11" wide		60	.267		16	10.65				26.65	33.50
00	13" wide, 3 1/2" tapers to 2 1/2", 12" wall		50	.320		16	12.75				28.75	37

3 51 Cast Roof Decks

3 51 13 – Cementitious Wood Fiber Decks

3 51 13.50 Cementitious/Wood Fiber Planks

10	CEMENTITIOUS/WOOD FIBER PLANKS				R051223-50								
50	Plank, beveled edge, 1" thick				2 Corp	1000	.016	S.F.	2.39	.71		3.10	3.72
00	1-1/2" thick					975	.016		3.15	.72		3.87	4.58
50	T & G, 2" thick					950	.017		3.60	.74		4.34	5.10
00	2-1/2" thick					925	.017		4.22	.76		4.98	5.80
50	3" thick					900	.018		4.85	.78		5.63	6.55
00	Bulb tee, sub-purlin and grout, 6' span, add				E-1	5000	.005		2.22	.23	.02	2.47	2.87
00	8' span				"	4200	.006		2.50	.28	.03	2.81	3.25

3 51 16 – Gypsum Concrete Roof Decks

3 51 16.50 Gypsum Roof Deck

10	GYPSUM ROOF DECK											
00	Paired gypsum, 2" thick			C-8	6000	.009	S.F.	1.34	.36	.12	1.82	2.15
00	3" thick			"	4800	.012	"	2.01	.46	.15	2.62	3.06

03 52 Lightweight Concrete Roof Insulation

03 52 16 - Lightweight Insulating Concrete

03 52 16.13 Lightweight Cellular Insulating Concrete		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&M
0010 LIGHTWEIGHT CELLULAR INSULATING CONCRETE							Labor	Equipment		
0020	Portland cement and foaming agent	[G]	C-8	50	1.120	C.Y.	144	44	14.30	240.30
03 52 16.16 Lightweight Aggregate Insulating Concrete										
0010 LIGHTWEIGHT AGGREGATE INSULATING CONCRETE										
0100	Poured vermiculite or perlite, field mix,									
0110	1:6 field mix	[G]	C-8	50	1.120	C.Y.	246	44	14.30	350
0200	Ready mix, 1:6 mix, roof fill, 2" thick	[G]		10000	.006	S.F.	1.36	.22	.07	1.65
0250	3" thick	[G]		7700	.007		2.05	.28	.09	2.42
0400	Expanded volcanic glass rock, with binder, minimum	[G]	2 Carp	1500	.011		.40	.47		.87
0450	Maximum	[G]	"	1200	.013		1.19	.59		1.78

03 54 Cast Underlayment

03 54 13 - Gypsum Cement Underlayment

03 54 13.50 Poured Gypsum Underlayment

0010 POURED GYPSUM UNDERLAYMENT										
0400	Underlayment, gypsum based, self-leveling 2500 psi, pumped, 1/2"		C-8	24000	.002	S.F.	.33	.09	.03	.45
0500	3/4"			20000	.003		.50	.11	.04	.65
0600	1"			16000	.004		.67	.14	.04	.85
1400	Hand placed, 1/2"		C-18	450	.020		.33	.71	.13	1.17
1500	3/4"		"	300	.030		.50	1.06	.19	1.75

03 54 16 - Hydraulic Cement Underlayment

03 54 16.50 Cement Underlayment

0010 CEMENT UNDERLAYMENT										
2510	Underlayment, P.C. based self-leveling, 4100 psi, pumped, 1/4"		C-8	20000	.003	S.F.	1.43	.11	.04	1.58
2520	1/2"			19000	.003		2.85	.12	.04	3.01
2530	3/4"			18000	.003		4.28	.12	.04	4.44
2540	1"			17000	.003		5.70	.13	.04	5.87
2550	1-1/2"			15000	.004		8.55	.15	.05	8.75
2560	Hand placed, 1/2"		C-18	450	.020		2.85	.71	.13	3.69
2610	Tapping, P.C. based self-level/dry 6100 psi, pumped, 1/4"		C-8	20000	.003		2.16	.11	.04	2.31
2620	1/2"			19000	.003		4.32	.12	.04	4.48
2630	3/4"			18000	.003		6.45	.12	.04	6.61
2660	1"			17000	.003		8.65	.13	.04	8.82
2670	1-1/2"			15000	.004		12.95	.15	.05	13.15
2680	Hand placed, 1/2"		C-18	450	.020		4.32	.71	.13	5.16

03 62 Non-Shrink Grouting

03 62 13 - Non-Metallic Non-Shrink Grouting

03 62 13.50 Grout, Non-Metallic Non-shrink

0010 GROUT, NON-METALLIC NON-SHRINK										
0300	Non-shrink, non-metallic, 1" deep		1 Cft	35	.229	S.F.	6.25	9.70		15.95
0350	2" deep		"	25	.320	"	12.50	13.55		26.05

03 62 16 - Metallic Non-Shrink Grouting

03 62 16.50 Grout, Metallic Non-Shrink

0010 GROUT, METALLIC NON-SHRINK										
0020	Column & machine bases, non-shrink, metallic, 1" deep		1 Cft	35	.229	S.F.	10	9.70		19.70
0050	2" deep		"	25	.320	"	20	13.55		33.55

3 63 Epoxy Grouting

3 63 05 – Grouting of Dowels and Fasteners

3 63 05.10 Epoxy Only		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
EPOXY ONLY							Labor	Equipment		
00	Chemical anchoring, epoxy cartridge, excludes layout, drilling, fastener									
30	For fastener 3/4" diam. x 6" embedment	2 Skwk	72	.222	Ea.	5.10	10.10		15.20	21
35	1" diam. x 8" embedment		66	.242		7.65	11		18.65	25.50
40	1-1/4" diam. x 10" embedment		60	.267		15.30	12.10		27.40	35.50
45	1-3/4" diam. x 12" embedment		54	.296		25.50	13.45		38.95	49
50	14" embedment		48	.333		30.50	15.15		45.65	57
55	2" diam. x 12" embedment		42	.381		41	17.30		58.30	71.50
60	18" embedment		32	.500		51	22.50		73.50	91

3 81 Concrete Cutting

3 81 13 – Flat Concrete Sawing

3 81 13.50 Concrete Floor/Slab Cutting

CONCRETE FLOOR/SLAB CUTTING										
00	Saw cut concrete slabs, plain, up to 3" deep	B-89	1060	.015	L.F.	.12	.60	.41	1.13	1.48
20	Each additional inch of depth		3180	.005		.04	.20	.14	.38	.49
40	Mesh reinforced, up to 3" deep		980	.016		.14	.65	.44	1.23	1.61
420	Each additional inch of depth		2940	.005		.05	.22	.15	.42	.54
500	Rad reinforced, up to 3" deep		800	.020		.17	.79	.54	1.50	1.98
520	Each additional inch of depth		2400	.007		.06	.26	.18	.50	.66

3 81 16 – Track Mounted Concrete Wall Sawing

3 81 16.50 Concrete Wall Cutting

CONCRETE WALL CUTTING										
00	Concrete walls, hydraulic saw, plain, per inch of depth	B-89B	250	.064	L.F.	.44	2.53	2.95	5.92	7.55
20	Rad reinforcing, per inch of depth	"	150	.107	"	.63	4.22	4.92	9.77	12.50

3 82 Concrete Boring

3 82 13 – Concrete Core Drilling

3 82 13.10 Core Drilling

CORE DRILLING										
00	Reinf. conc slab, up to 6" thick, incl. bit, layout & set up									
100	1" diameter core	B-89A	17	.941	Ea.	.18	38	6.50	44.68	66
150	Each added inch thick in same hole, add		1440	.011		.03	.45	.08	.56	.80
200	2" diameter core		16.50	.970		.29	39	6.70	45.99	67.50
250	Each added inch thick in same hole, add		1080	.015		.05	.60	.10	.75	1.08
300	3" diameter core		16	1		.41	40.50	6.90	47.81	70
350	Each added inch thick in same hole, add		720	.022		.07	.89	.15	1.11	1.62
500	4" diameter core		15	1.067		.49	43	7.35	50.84	74.50
550	Each added inch thick in same hole, add		480	.033		.49	1.34	.23	2.06	2.86
700	6" diameter core		14	1.143		.81	46	7.85	54.66	80.50
750	Each added inch thick in same hole, add		360	.044		.13	1.79	.31	2.23	3.25
900	8" diameter core		13	1.231		1.03	49.50	8.50	59.03	87
950	Each added inch thick in same hole, add		288	.056		.17	2.24	.38	2.79	4.06
100	10" diameter core		12	1.333		1.50	53.50	9.20	64.20	95
150	Each added inch thick in same hole, add		240	.067		.25	2.68	.46	3.39	4.92
300	12" diameter core		11	1.455		1.65	58.50	10	70.15	103
350	Each added inch thick in same hole, add		206	.078		.27	3.13	.54	3.94	5.70
500	14" diameter core		10	1.600		2.07	64.50	11	77.57	114
550	Each added inch thick in same hole, add		180	.089		.34	3.58	.61	4.53	6.55

03 82 Concrete Boring

03 82 13 - Concrete Core Drilling

03 82 13.10 Core Drilling		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
1700	18" diameter core	B-89A	9	1.778	Ea.	2.75	71.50	12.25	86.50	127
1750	Each added inch thick in same hole, add		144	.111		.46	4.47	.77	5.70	87
1754	24" diameter core		8	2		3.89	80.50	13.80	98.19	143
1756	Each added inch thick in same hole, add		120	.133		.65	5.35	.92	6.92	10
1760	For horizontal holes, add to above						20%	20%		
1770	Prestressed hollow core plank, 8" thick									
1780	1" diameter core	B-89A	17.50	.914	Ea.	.25	37	6.30	43.55	64
1790	Each added inch thick in same hole, add		3840	.004		.03	.17	.03	.23	3
1794	2" diameter core		17.25	.928		.39	37.50	6.40	44.29	65
1796	Each added inch thick in same hole, add		2880	.006		.05	.22	.04	.31	4
1800	3" diameter core		17	.941		.54	38	6.50	45.04	66.5
1810	Each added inch thick in same hole, add		1920	.008		.07	.34	.06	.47	6
1820	4" diameter core		16.50	.970		.65	39	6.70	46.35	68
1830	Each added inch thick in same hole, add		1280	.013		.08	.50	.09	.67	9
1840	6" diameter core		15.50	1.032		1.08	41.50	7.10	49.68	73
1850	Each added inch thick in same hole, add		960	.017		.13	.67	.11	.91	1.3
1860	8" diameter core		15	1.067		1.37	43	7.35	51.72	75.5
1870	Each added inch thick in same hole, add		768	.021		.17	.84	.14	1.15	1.6
1880	10" diameter core		14	1.143		2	46	7.85	55.85	82
1890	Each added inch thick in same hole, add		640	.025		.25	1.01	.17	1.43	2.0
1900	12" diameter core		13.50	1.185		2.20	47.50	8.15	57.85	85
1910	Each added inch thick in same hole, add		548	.029		.27	1.18	.20	1.65	2.3
3010	Bits for core drill, diamond, premium, 1" diameter					73.50			73.50	81
3020	2" diameter					116			116	128
3030	3" diameter					163			163	179
3040	4" diameter					195			195	215
3060	6" diameter					325			325	355
3080	8" diameter					410			410	455
3110	10" diameter					600			600	660
3120	12" diameter					660			660	725
3140	14" diameter					825			825	910
3180	18" diameter					1,100			1,100	1,200
3240	24" diameter					1,550			1,550	1,700

03 82 16 - Concrete Drilling

03 82 16.10 Concrete Impact Drilling										
CONCRETE IMPACT DRILLING										
0010	Up to 4" deep in conc/brick floor/wall, incl. bit & layout, no anchor									
0050	Holes, 1/4" diameter	1 Carp	75	.107	Ea.	.05	4.70		4.75	7.2
0100	For each additional inch of depth, add		430	.019		.01	.82		.83	1.2
0150	3/8" diameter		63	.127		.05	5.60		5.65	8.6
0200	For each additional inch of depth, add		340	.024		.01	1.04		1.05	1.6
0250	1/2" diameter		50	.160		.05	7.05		7.10	10.5
0300	For each additional inch of depth, add		250	.032		.01	1.41		1.42	2.1
0350	5/8" diameter		48	.167		.08	7.35		7.43	11.4
0400	For each additional inch of depth, add		240	.033		.02	1.47		1.49	2.2
0450	3/4" diameter		45	.178		.10	7.85		7.95	12.1
0500	For each additional inch of depth, add		220	.036		.03	1.60		1.63	2.5
0550	7/8" diameter		43	.186		.13	8.20		8.33	12.7
0600	For each additional inch of depth, add		210	.038		.03	1.68		1.71	2.6
0650	1" diameter		40	.200		.15	8.80		8.95	13.7
0700	For each additional inch of depth, add		190	.042		.04	1.86		1.90	2.9
0750	1-1/4" diameter		38	.211		.23	9.30		9.53	14.5

3 82 Concrete Boring

3 82 16 - Concrete Drilling

82 16.10 Concrete Impact Drilling		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
50	For each additional inch of depth, add	1 Carp	180	.044	Eq.	.06	1.96		2.02	3.08
00	1-1/2" diameter		35	.229		.35	10.10		10.45	15.90
50	For each additional inch of depth, add	▼	165	.048	▼	.09	2.14		2.23	3.39
00	For ceiling installations, add						40%			

Division Notes

[illegible]

Estimating Tips

05 00 Common Work Results for Masonry

The terms *mortar* and *grout* are often used interchangeably, and incorrectly. Mortar is used to bed masonry units, seal the entry of air and moisture, provide architectural appearance, and allow for size variations in the units. Grout is used primarily in reinforced masonry construction and is used to bond the masonry to the reinforcing steel. Common mortar types are M(2500 psi), S(1800 psi), N(750 psi), and D(350 psi), and conform to ASTM C270. Grout is either fine or coarse and conforms to ASTM C476, and in-place strengths generally exceed 2500 psi. Mortar and grout are different components of masonry construction and are placed by entirely different methods. An estimator should be aware of their unique uses and costs.

Mortar is included in all assembled masonry line items. The mortar cost, part of the assembled masonry material cost, includes all ingredients, all labor, and all equipment required. Please see reference number R040513-10.

Waste, specifically the loss/droppings of mortar and the breakage of brick and block, is included in all masonry assemblies in this division. A factor of 25% is added for mortar and 3% for brick and concrete masonry units.

- Scaffolding or staging is not included in any of the Division 4 costs. Refer to Subdivision 01 54 23 for scaffolding and staging costs.

04 20 00 Unit Masonry

- The most common types of unit masonry are brick and concrete masonry. The major classifications of brick are building brick (ASTM C62), facing brick (ASTM C216), glazed brick, fire brick, and pavers. Many varieties of texture and appearance can exist within these classifications, and the estimator would be wise to check local custom and availability within the project area. For repair and remodeling jobs, matching the existing brick may be the most important criteria.
- Brick and concrete block are priced by the piece and then converted into a price per square foot of wall. Openings less than two square feet are generally ignored by the estimator because any savings in units used is offset by the cutting and trimming required.
- It is often difficult and expensive to find and purchase small lots of historic brick. Costs can vary widely. Many design issues affect costs, selection of mortar mix, and repairs or replacement of masonry materials. Cleaning techniques must be reflected in the estimate.
- All masonry walls, whether interior or exterior, require bracing. The cost of bracing walls during construction should be included by the estimator, and this bracing must remain in place until permanent bracing is complete. Permanent bracing of masonry walls is accomplished by masonry itself, in the form of pilasters or abutting wall corners, or by anchoring the walls to the structural frame. Accessories in the form of anchors, anchor slots, and ties are used, but their supply and installation can be by different trades. For instance, anchor slots on spandrel beams and columns are supplied and welded in place by the steel fabricator, but the ties from the slots into the masonry are installed by the bricklayer. Regardless of the installation method, the estimator must be certain that these accessories are accounted for in pricing.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

04 01 Maintenance of Masonry

04 01 20 - Maintenance of Unit Masonry

04 01 20.20 Pointing Masonry		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind 04P
POINTING MASONRY							Labor	Equipment		
0010	Cut and repoint brick, hard mortar, running bond	1 Brk	80	.100	S.F.	.53	4.41		4.94	7.2
0300	Common bond		77	.104		.53	4.58		5.11	7.5
0360	Flemish bond		70	.114		.56	5.05		5.61	8.3
0400	English bond		65	.123		.56	5.45		6.01	8.8
0600	Soft old mortar, running bond		100	.080		.53	3.53		4.06	5.9
0620	Common bond		96	.083		.53	3.67		4.20	6.1
0640	Flemish bond		90	.089		.56	3.92		4.48	6.5
0680	English bond		82	.098		.56	4.30		4.86	7.1
0700	Stonework, hard mortar		140	.057	L.F.	.70	2.52		3.22	4.5
0720	Soft old mortar		160	.050	"	.70	2.21		2.91	4.1
1000	Repoint, mask and grout method, running bond		95	.084	S.F.	.70	3.71		4.41	6.3
1020	Common bond		90	.089		.70	3.92		4.62	6.6
1040	Flemish bond		86	.093		.74	4.10		4.84	7.1
1060	English bond		77	.104		.74	4.58		5.32	7.7
2000	Scrub coat, sand grout on walls, minimum		120	.067		2.85	2.94		5.79	7.4
2020	Maximum		98	.082		3.96	3.60		7.56	9.0

04 01 20.30 Pointing CMU

0010	POINTING CMU									
0300	Cut and repoint block, hard mortar, running bond	1 Brk	190	.042	S.F.	.22	1.86		2.08	3.0
0310	Stacked bond		200	.040		.22	1.76		1.98	2.9
0600	Soft old mortar, running bond		230	.035		.22	1.53		1.75	2.5
0610	Stacked bond		245	.033		.22	1.44		1.66	2.4

04 01 20.40 Sawing Masonry

0010	SAWING MASONRY									
0050	Brick or block by hand, per inch depth	A-1	125	.064	L.F.		2.25	.53	2.78	4.2

04 01 30 - Unit Masonry Cleaning

04 01 30.20 Cleaning Masonry

0010	CLEANING MASONRY									
0200	Chemical cleaning, new construction, brush and wash, minimum	D-1	1000	.016	S.F.	.05	.64		.69	1.0
0220	Average		800	.020		.08	.80		.88	1.2
0240	Maximum		600	.027		.10	1.06		1.16	1.7
0260	Light restoration, minimum		800	.020		.11	.80		.91	1.3
0270	Average		400	.040		.17	1.59		1.76	2.5
0280	Maximum		330	.048		.22	1.93		2.15	3.1
0300	Heavy restoration, minimum		600	.027		.10	1.06		1.16	1.7
0310	Average		400	.040		.15	1.59		1.74	2.5
0320	Maximum		250	.064		.20	2.55		2.75	4.0
0400	High pressure water only, minimum	C-29	500	.016			.56	.13	.69	1.0
0420	Average		375	.021			.75	.17	.92	1.3
0440	Maximum		250	.032			1.12	.25	1.37	2.0
2000	Steam cleaning, minimum	A-1H	750	.011			.37	.09	.46	.7
2020	Average		625	.013			.45	.11	.56	.8
2040	Maximum		375	.021			.75	.18	.93	1.3
4000	Add for masking doors and windows	1 Clab	800	.010		.05	.35		.40	.6
4200	Add for pedestrian protection				Job					10%

04 01 30.40 Masonry Building Cleaning

0010	MASONRY BUILDING CLEANING									
0020	Steam clean building, not incl scaffolding, minimum	A-1H	750	.011	S.F.		.37	.09	.46	.7
0100	Maximum		375	.021			.75	.18	.93	1.3
0300	Common face brick		438	.018			.64	.15	.79	1.1

4 01 Maintenance of Masonry

4 01 30 - Unit Masonry Cleaning

4 01 30.40 Masonry Building Cleaning		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	Bare Costs Equipment	Total	Total Ind O&P
0	Wire cut face brick	A-1H	312	.026	S.F.		.90	.21	1.11	1.62
4 01 30.60 Brick Washing										
0	BRICK WASHING		R040130-10							
2	Acid cleanser, smooth brick surface	1 Bric	560	.014	S.F.	.04	.63		.67	1
0	Rough brick		400	.020		.06	.88		.94	1.40
0	Stone, acid wash		600	.013		.07	.59		.66	.97
00	Muriatic acid, price per gallon in 5 gallon lots				Gol.	9			9	9.90

4 05 Common Work Results for Masonry

4 05 05 - Selective Masonry Demolition

4 05 05.10 Selective Demolition

0	SELECTIVE DEMOLITION		R024119-10							
00	Bond beams, 8" block with #4 bar	2 Clob	32	.500	L.F.		17.55		17.55	27
00	Concrete block walls, unreinforced, 2" thick		1200	.013	S.F.	.47			.47	.72
10	4" thick		1150	.014		.49			.49	.75
20	6" thick		1100	.015		.51			.51	.79
30	8" thick		1050	.015		.53			.53	.82
40	10" thick		1000	.016		.56			.56	.86
50	12" thick		950	.017		.59			.59	.91
30	Reinforced alternate courses, 2" thick		1130	.014		.50			.50	.76
70	4" thick		1080	.015		.52			.52	.80
00	6" thick		1035	.015		.54			.54	.83
10	8" thick		990	.016		.57			.57	.87
20	10" thick		940	.017		.60			.60	.92
30	12" thick		890	.018		.63			.63	.97
40	Reinforced alternate courses & vertically 48" OC, 4" thick		900	.018		.62			.62	.96
50	6" thick		850	.019		.66			.66	1.02
60	8" thick		800	.020		.70			.70	1.08
80	10" thick		750	.021		.75			.75	1.15
90	12" thick		700	.023		.80			.80	1.23
00	Chimney, 16" x 16", soft old mortar	1 Clob	55	.145	C.F.	5.10			5.10	7.85
20	Hard mortar		40	.200		7			7	10.80
30	16" x 20", soft old mortar		55	.145		5.10			5.10	7.85
40	Hard mortar		40	.200		7			7	10.80
50	16" x 24", soft old mortar		55	.145		5.10			5.10	7.85
60	Hard mortar		40	.200		7			7	10.80
80	20" x 20", soft old mortar		55	.145		5.10			5.10	7.85
00	Hard mortar		40	.200		7			7	10.80
10	20" x 24", soft old mortar		55	.145		5.10			5.10	7.85
20	Hard mortar		40	.200		7			7	10.80
40	20" x 32", soft old mortar		55	.145		5.10			5.10	7.85
60	Hard mortar		40	.200		7			7	10.80
00	48" x 48", soft old mortar		55	.145		5.10			5.10	7.85
20	Hard mortar		40	.200		7			7	10.80
50	Metal, high temp steel jacket, 24" diameter	E-2	130	.431	V.L.F.	21	11.50		32.50	48
60	60" diameter	"	60	.933		45	25		70	105
80	Flue lining, up to 12" x 12"	1 Clob	200	.040		1.40			1.40	2.16
82	Up to 24" x 24"		150	.053		1.87			1.87	2.88
00	Columns, 8" x 8", soft old mortar		48	.167		5.85			5.85	9
20	Hard mortar		40	.200		7			7	10.80
60	16" x 16", soft old mortar		16	.500		17.55			17.55	27

04 05 Common Work Results for Masonry

04 05 05 – Selective Masonry Demolition

04 05 05.10 Selective Demolition		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
2100	Hard mortar	1 Clob	14	.571	V.L.F.		20		20	31
2140	24" x 24", soft old mortar		8	1			35		35	54
2160	Hard mortar		6	1.333			47		47	72
2200	36" x 36", soft old mortar		4	2			70		70	108
2220	Hard mortar		3	2.667	▼		93.50		93.50	144
2230	Alternate pricing method, soft old mortar		30	.267	C.F.		9.35		9.35	14.40
2240	Hard mortar	▼	23	.348	"		12.20		12.20	18.80
3000	Copings, precast or masonry, to 8" wide									
3020	Soft old mortar	1 Clob	180	.044	L.F.		1.56		1.56	2.40
3040	Hard mortar	"	160	.050	"		1.76		1.76	2.70
3100	To 12" wide									
3120	Soft old mortar	1 Clob	160	.050	L.F.		1.76		1.76	2.70
3140	Hard mortar	"	140	.057	"		2.01		2.01	3.09
4000	Fireplace, brick, 30" x 24" opening									
4020	Soft old mortar	1 Clob	2	4	Eq.		140		140	216
4040	Hard mortar		1.25	6.400			225		225	345
4100	Stone, soft old mortar		1.50	5.333			187		187	288
4120	Hard mortar		1	8	▼		281		281	430
5000	Veneers, brick, soft old mortar		140	.057	S.F.		2.01		2.01	3.09
5020	Hard mortar		125	.064			2.25		2.25	3.46
5100	Granite and marble, 2" thick		180	.044			1.56		1.56	2.40
5120	4" thick		170	.047			1.65		1.65	2.54
5140	Stone, 4" thick		180	.044			1.56		1.56	2.40
5160	8" thick		175	.046	▼		1.60		1.60	2.47
5400	Alternate pricing method, stone, 4" thick		60	.133	C.F.		4.68		4.68	7.20
5420	8" thick	▼	85	.094	"		3.30		3.30	5.10

04 05 13 – Masonry Mortaring

04 05 13.10 Cement

0010	CEMENT									
0100	Masonry, 70 lb. bag, T.L. lots				Bag	9.85			9.85	10.85
0150	L.T.L. lots					10.45			10.45	11.50
0200	White, 70 lb. bag, T.L. lots					15.55			15.55	17.15
0250	L.T.L. lots				▼	17.75			17.75	19.55

04 05 13.20 Lime

0010	LIME									
0020	Masons, hydrated, 50 lb. bag, T.L. lots				Bag	9.10			9.10	10
0050	L.T.L. lots					10			10	11
0200	Finish, double hydrated, 50 lb. bag, T.L. lots					9.90			9.90	10.90
0250	L.T.L. lots				▼	10.90			10.90	12

04 05 13.23 Surface Bonding Masonry Mortaring

0010	SURFACE BONDING MASONRY MORTARING									
0020	Gray or white colors, not incl. block work	1 Bric	540	.015	S.F.	.12	.65		.77	1.1

04 05 13.30 Mortar

0010	MORTAR									
0020	With masonry cement									
0100	Type M, 1:1:6 mix	1 Brhe	143	.056	C.F.	5.15	1.99		7.14	8.6
0200	Type N, 1:3 mix	"	143	.056	"	4.50	1.99		6.49	7.9
2000	With portland cement and lime									
2100	Type M, 1:1/4:3 mix	1 Brhe	143	.056	C.F.	8.80	1.99		10.79	12.7
2200	Type N, 1:1:6 mix, 750 psi		143	.056		6.80	1.99		8.79	10.4
2300	Type O, 1:2:9 mix (Pointing Mortar)	▼	143	.056	▼	7.50	1.99		9.49	11.2

04 05 Common Work Results for Masonry

04 05 13 – Masonry Mortaring

04 05 13.30 Mortar		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
							Labor	Equipment		
2650	Pre-mixed, type S or N				C.F.	4.94			4.94	5.45
2700	Mortar for glass block	1 Brhe	143	.056	↓	10.35	1.99		12.34	14.40
2900	Mortar for Fire Brick, 80 lb. bag, T.L. Lots				Bag	25.50			25.50	28

04 05 13.91 Masonry Restoration Mortaring

04 05 13.91 MASONRY RESTORATION MORTARING										
0010	Masonry restoration mix				Lb.	1.97			1.97	2.17
0050	White				"	2.27			2.27	2.50

04 05 13.93 Mortar Pigments

04 05 13.93 MORTAR PIGMENTS, 50 lb. bags (2 bags per M bricks)		R040513-10								
0020	Color admixture, range 2 to 10 lb. per bag of cement, minimum				Lb.	3.70			3.70	4.07
0050	Average				↓	5.70			5.70	6.25
0100	Maximum				↓	12.20			12.20	13.40

04 05 13.95 Sand

04 05 13.95 SAND, screened and washed at pit										
0020	For mortar, per ton				Ton	16.60			16.60	18.25
0050	With 10 mile haul					27			27	29.50
0100	With 30 mile haul				↓	36			36	39.50
0200	Screened and washed, at the pit				C.Y.	23			23	25.50
0250	With 10 mile haul					37.50			37.50	41
0300	With 30 mile haul				↓	50			50	55

04 05 13.98 Mortar Admixtures

04 05 13.98 MORTAR ADMIXTURES										
0020	Waterproofing admixture, per quart (1 qt. to 2 bags of masonry cement)				Qt.	9.50			9.50	10.45

04 05 16 – Masonry Grouting

04 05 16.30 Grouting											
0010	GROUTING	R040513-10									
0011	Bond beams & lintels, 8" deep, 6" thick, 0.15 C.F. per L.F.		D-4	1480	.022	L.F.	.64	.87	.09	1.60	2.10
0020	8" thick, 0.2 C.F. per L.F.			1400	.023		.99	.91	.09	1.99	2.56
0050	10" thick, 0.25 C.F. per L.F.			1200	.027		1.06	1.07	.11	2.24	2.89
0060	12" thick, 0.3 C.F. per L.F.		▼	1040	.031	▼	1.27	1.23	.12	2.62	3.39
0200	Concrete block cores, solid, 4" thk., by hand, 0.067 C.F./S.F. of wall		D-8	1100	.036	S.F.	.28	1.48		1.76	2.54
0210	6" thick, pumped, 0.175 C.F. per S.F.		D-4	720	.044		.74	1.78	.18	2.70	3.68
0250	8" thick, pumped, 0.258 C.F. per S.F.			680	.047		1.09	1.88	.19	3.16	4.25
0300	10" thick, pumped, 0.340 C.F. per S.F.			660	.048		1.44	1.94	.19	3.57	4.72
0350	12" thick, pumped, 0.422 C.F. per S.F.			640	.050		1.79	2	.20	3.99	5.20
0500	Cavity walls, 2" spoce, pumped, 0.167 C.F./S.F. of wall			1700	.019		.71	.75	.07	1.53	2
0550	3" spoce, 0.250 C.F./S.F.			1200	.027		1.06	1.07	.11	2.24	2.89
0600	4" spoce, 0.333 C.F. per S.F.			1150	.028		1.41	1.11	.11	2.63	3.35
0700	6" spoce, 0.500 C.F. per S.F.			800	.040	▼	2.12	1.60	.16	3.88	4.93
0800	Door frames, 3' x 7' opening, 2.5 C.F. per opening			60	.533	Opng.	10.60	21.50	2.12	34.22	46
0850	6' x 7' opening, 3.5 C.F. per opening			45	.711	"	14.80	28.50	2.83	46.13	62.50
2000	Grout, #476, for bond beams, lintels and CMU cores		▼	350	.091	C.F.	4.23	3.66	.36	8.25	10.55

04 05 19 – Masonry Anchorage and Reinforcing

04 05 19.05 Anchor Bolts

04 05 19.05 ANCHOR BOLTS										
0010	Installed in fresh grout in CMU bond beams or filled cores, no templates									
0020	Hooked, with nut and washer, 1/2" diam., 8" long	1 Bric	132	.061	Eo.	1.39	2.67		4.06	5.55
0030	12" long		131	.061		1.54	2.69		4.23	5.75
0040	5/8" diameter, 8" long		129	.062		3	2.74		5.74	7.45
0050	12" long		127	.063	↓	3.70	2.78		6.48	8.25

04 05 Common Work Results for Masonry

04 05 19 – Masonry Anchorage and Reinforcing

04 05 19.05 Anchor Bolts		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0060	3/4" diameter, 8" long	1 Bric	127	.063	Eq.	3.70	2.78		6.48	8.25
0070	12" long	↓	125	.064	↓	4.62	2.82		7.44	9.35
04 05 19.16 Masonry Anchors										
0010	MASONRY ANCHORS									
0020	For brick veneer, galv., corrugated, 7/8" x 7", 22 Ga.	1 Bric	10.50	.762	C	13	33.50		46.50	65
0100	24 Ga.		10.50	.762		9.10	33.50		42.60	60.50
0150	16 Ga.		10.50	.762		25.50	33.50		59	78.50
0200	Buck anchors, galv., corrugated, 16 gauge, 2" bend, 8" x 2"		10.50	.762		49	33.50		82.50	105
0250	8" x 3"		10.50	.762		51	33.50		84.50	107
0660	Cavity wall, Z-type, galvanized, 6" long, 1/8" diam.		10.50	.762		23	33.50		56.50	75.50
0670	3/16" diameter		10.50	.762		21	33.50		54.50	74
0680	1/4" diameter		10.50	.762		38	33.50		71.50	92
0850	8" long, 3/16" diameter		10.50	.762		23.50	33.50		57	76
0855	1/4" diameter		10.50	.762		46	33.50		79.50	101
1000	Rectangular type, galvanized, 1/4" diameter, 2" x 6"		10.50	.762		67.50	33.50		101	125
1050	4" x 6"		10.50	.762		82.50	33.50		116	141
1100	3/16" diameter, 2" x 6"		10.50	.762		38.50	33.50		72	93
1150	4" x 6"		10.50	.762		44	33.50		77.50	99
1500	Rigid partition anchors, plain, 8" long, 1" x 1/8"		10.50	.762		200	33.50		233.50	271
1550	1" x 1/4"		10.50	.762		235	33.50		268.50	310
1580	1-1/2" x 1/8"		10.50	.762		220	33.50		253.50	293
1600	1-1/2" x 1/4"		10.50	.762		275	33.50		308.50	355
1650	2" x 1/8"		10.50	.762		260	33.50		293.50	335
1700	2" x 1/4"	↓	10.50	.762	↓	241	33.50		274.50	315

04 05 19.26 Masonry Reinforcing Bars

0010	MASONRY REINFORCING BARS	R040519-50								
0015	Steel bars A615, placed horiz., #3 & #4 bars	1 Bric	450	.018	Lb.	.49	.78		1.27	1.72
0020	#5 & #6 bars		800	.010		.49	.44		.93	1.21
0050	Placed vertical, #3 & #4 bars		350	.023		.49	1.01		1.50	2.00
0060	#5 & #6 bars		650	.012	↓	.49	.54		1.03	1.36
0200	Joint reinforcing, regular truss, to 6" wide, mill std galvanized		30	.267	C.L.F.	19.20	11.75		30.95	39
0250	12" wide		20	.400		22.50	17.65		40.15	51
0400	Cavity truss with drip section, to 6" wide		30	.267		19.10	11.75		30.85	39
0450	12" wide	↓	20	.400	↓	22	17.65		39.65	50.5

04 05 23 – Masonry Accessories

04 05 23.13 Masonry Control and Expansion Joints

0010	MASONRY CONTROL AND EXPANSION JOINTS									
0020	Rubber, for double wythe 8" minimum wall (Brick/CMU)	1 Bric	400	.020	L.F.	1.88	.88		2.76	3.4
0025	"T" shaped		320	.025		1.15	1.10		2.25	2.9
0030	Cross-shaped for CMU units		280	.029		1.48	1.26		2.74	3.5
0050	PVC, for double wythe 8" minimum wall (Brick/CMU)		400	.020		1.38	.88		2.26	2.8
0120	"T" shaped		320	.025		.71	1.10		1.81	2.4
0160	Cross-shaped for CMU units	↓	280	.029	↓	.95	1.26		2.21	2.9

04 05 23.19 Masonry Cavity Drainage, Weepholes, and Vents

0010	MASONRY CAVITY DRAINAGE, WEEPHOLES, AND VENTS									
0020	Extruded aluminum, 4" deep, 2-3/8" x 8-1/8"	1 Bric	30	.267	Eq.	31.50	11.75		43.25	52.5
0050	5" x 8-1/8"		25	.320		41	14.10		55.10	67
0100	2-1/4" x 25"		25	.320		71.50	14.10		85.60	101
0150	5" x 16-1/2"		22	.364		62.50	16.05		78.55	92.5
0200	6" x 16-1/2"		22	.364		83.50	16.05		99.55	116
0250	7-3/4" x 16-1/2"	↓	20	.400	↓	71	17.65		88.65	105

04 05 Common Work Results for Masonry

04 05 23 – Masonry Accessories

04 05 23.19 Masonry Cavity Drainage, Weepholes, and Vents		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0400	For baked enamel finish, odd				Eo.	35%				
0500	For cast aluminum, pointed, odd					60%				
1000	Stainless steel ventilators, 6" x 6"	1 Bric	25	.320		126	14.10		140.10	160
1050	8" x 8"		24	.333		132	14.70		146.70	168
1100	12" x 12"		23	.348		153	15.35		168.35	191
1150	12" x 6"		24	.333		134	14.70		148.70	169
1200	Foundation block vent, galv., 1-1/4" thk, 8" high, 16" long, no domper	↓	30	.267		24.50	11.75		36.25	45
1250	For damper, odd				↓	8.20			8.20	9

04 05 23.95 Wall Plugs

0010	WALL PLUGS (for nailing to brickwork)									
0020	26 ga., galvanized, plain	1 Bric	10.50	.762	C	31	33.50		64.50	84.50
0050	Wood filled	"	10.50	.762	"	104	33.50		137.50	165

04 21 Clay Unit Masonry

04 21 13 – Brick Masonry

04 21 13.13 Brick Veneer Masonry

0010	BRICK VENEER MASONRY , T.L. lots, excl. scaff., grout & reinforcing R042110-20									
0015	Material costs incl. 3% brick and 25% mortar waste									
0020	Standard, select common, 4" x 2-2/3" x 8" (6.75/S.F.)	D-8	1.50	26.667	M	535	1,075		1,610	2,250
0050	Red, 4" x 2-2/3" x 8", running bond		1.50	26.667		620	1,075		1,695	2,325
0100	Full header every 6th course (7.88/S.F.) R042110-50		1.45	27.586		620	1,125		1,745	2,375
0150	English, full header every 2nd course (10.13/S.F.)		1.40	28.571		615	1,175		1,790	2,425
0200	Flemish, alternate header every course (9.00/S.F.)		1.40	28.571		620	1,175		1,795	2,425
0250	Flemish, alt. header every 6th course (7.13/S.F.)		1.45	27.586		620	1,125		1,745	2,375
0300	Full headers throughout (13.50/S.F.)		1.40	28.571		615	1,175		1,790	2,425
0350	Rowlock course (13.50/S.F.)		1.35	29.630		615	1,200		1,815	2,500
0400	Rowlock stretcher (4.50/S.F.)		1.40	28.571		625	1,175		1,800	2,450
0450	Soldier course (6.75/S.F.)		1.40	28.571		620	1,175		1,795	2,425
0500	Sailor course (4.50/S.F.)		1.30	30.769		625	1,250		1,875	2,600
0601	Buff or gray face, running bond, (6.75/S.F.)		1.50	26.667		620	1,075		1,695	2,325
0700	Glozed face, 4" x 2-2/3" x 8", running bond		1.40	28.571		1,775	1,175		2,950	3,725
0750	Full header every 6th course (7.88/S.F.)		1.35	29.630		1,700	1,200		2,900	3,700
1000	Jumbo, 6" x 4" x 12", (3.00/S.F.)		1.30	30.769		1,775	1,250		3,025	3,875
1051	Norman, 4" x 2-2/3" x 12" (4.50/S.F.)		1.45	27.586		1,150	1,125		2,275	2,975
1100	Norwegian, 4" x 3-1/5" x 12" (3.75/S.F.)		1.40	28.571		1,150	1,175		2,325	3,000
1150	Economy, 4" x 4" x 8" (4.50 per S.F.)		1.40	28.571		900	1,175		2,075	2,750
1201	Engineer, 4" x 3-1/5" x 8", (5.63/S.F.)		1.45	27.586		630	1,125		1,755	2,400
1251	Roman, 4" x 2" x 12", (6.00/S.F.)		1.50	26.667		985	1,075		2,060	2,725
1300	S.C.R. 6" x 2-2/3" x 12" (4.50/S.F.)		1.40	28.571		1,175	1,175		2,350	3,050
1350	Utility, 4" x 4" x 12" (3.00/S.F.)	↓	1.35	29.630		1,550	1,200		2,750	3,525
1360	For less than truck load lots, odd				↓	15%			15%	
1400	For battered walls, odd						30%			
1450	For corbels, odd						75%			
1500	For curved walls, odd						30%			
1550	For pits and trenches, deduct						20%			
1999	Alternate method of figuring by square foot									
2000	Standard, sel. common, 4" x 2-2/3" x 8", (6.75/S.F.)	D-8	230	.174	S.F.	3.61	7.10		10.71	14.65
2020	Standard, red, 4" x 2-2/3" x 8", running bond (6.75/S.F.)	↓	220	.182		4.19	7.40		11.59	15.75
2050	Full header every 6th course (7.88/S.F.)	↓	185	.216		4.88	8.80		13.68	18.65
2100	English, full header every 2nd course (10.13/S.F.)	↓	140	.286		6.25	11.65		17.90	24.50
2150	Flemish, alternate header every course (9.00/S.F.)	↓	150	.267	↓	5.55	10.85		16.40	22.50

04 21 Clay Unit Masonry

04 21 13 - Brick Masonry

04 21 13.13 Brick Veneer Masonry		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
2200	Flemish, alt. header every 6th course (7.13/S.F.)	D-8	205	.195	S.F.	4.42	7.95		12.37	16.85
2250	Full headers throughout (13.50/S.F.)		105	.381		8.30	15.50		23.80	32.50
2300	Rowlock course (13.50/S.F.)		100	.400		8.30	16.30		24.60	33.50
2350	Rowlock stretcher (4.50/S.F.)		310	.129		2.81	5.25		8.06	11.05
2400	Soldier course (6.75/S.F.)		200	.200		4.19	8.15		12.34	16.90
2450	Solar course (4.50/S.F.)		290	.138		2.81	5.60		8.41	11.60
2600	Buff or gray face, running band, (6.75/S.F.)		220	.182		4.43	7.40		11.83	16
2700	Glazed face brick, running band		210	.190		11.45	7.75		19.20	24.50
2750	Full header every 6th course (7.88/S.F.)		170	.235		13.35	9.60		22.95	29
3000	Jumbo, 6" x 4" x 12" running band (3.00/S.F.)		435	.092		4.90	3.74		8.64	11.00
3050	Narman, 4" x 2-2/3" x 12" running band, (4.5/S.F.)		320	.125		5.75	5.10		10.85	14
3100	Narwegian, 4" x 3-1/5" x 12" (3.75/S.F.)		375	.107		4.15	4.34		8.49	11.10
3150	Economy, 4" x 4" x 8" (4.50/S.F.)		310	.129		4.02	5.25		9.27	12.30
3200	Engineer, 4" x 3-1/5" x 8" (5.63/S.F.)		260	.154		3.54	6.25		9.79	13.30
3250	Roman, 4" x 2" x 12" (6.00/S.F.)		250	.160		5.75	6.50		12.25	16.20
3300	SCR, 6" x 2-2/3" x 12" (4.50/S.F.)		310	.129		5.25	5.25		10.50	13.70
3350	Utility, 4" x 4" x 12" (3.00/S.F.)	▼	450	.089	▼	4.51	3.62		8.13	10.40
3360	For less than truck load lots, add				M	15%			15%	
3370	For battered walls, add						30%			
3380	For corbels, add						75%			
3400	For cavity wall construction, add						15%			
3450	For stacked band, add						10%			
3500	For interior veneer construction, add						15%			
3510	For pits and trenches, deduct						20%			
3550	For curved walls, add						30%			

04 21 13.14 Thin Brick Veneer

0010	THIN BRICK VENEER									
0015	Material costs incl. 3% brick and 25% mortar waste									
0020	On & incl. metal panel support sys, modular, 2-2/3" x 5/8" x 8", red	D-7	92	.174	S.F.	8.75	6.35		15.10	18.80
0100	Closure, 4" x 5/8" x 8"		110	.145		8.75	5.30		14.05	17.40
0110	Narman, 2-2/3" x 5/8" x 12"		110	.145		8.95	5.30		14.25	17.60
0120	Utility, 4" x 5/8" x 12"		125	.128		8.95	4.66		13.61	16.70
0130	Emperor, 4" x 3/4" x 16"		175	.091		10.15	3.33		13.48	16.10
0140	Super emperor, 8" x 3/4" x 16"	▼	195	.082	▼	10.15	2.99		13.14	15.60
0150	For L shaped corners with 4" return, add				L.F.	9.25			9.25	10.20
0200	On masonry/plaster back-up, modular, 2-2/3" x 5/8" x 8", red	D-7	137	.117	S.F.	3.95	4.25		8.20	10.60
0210	Closure, 4" x 5/8" x 8"		165	.097		3.95	3.53		7.48	9.50
0220	Narman, 2-2/3" x 5/8" x 12"		165	.097		4.15	3.53		7.68	9.70
0230	Utility, 4" x 5/8" x 12"		185	.086		4.15	3.15		7.30	9.20
0240	Emperor, 4" x 3/4" x 16"		260	.062		5.35	2.24		7.59	9.20
0250	Super emperor, 8" x 3/4" x 16"	▼	285	.056	▼	5.35	2.05		7.40	8.10
0260	For L shaped corners with 4" return, add				L.F.	9.25			9.25	10.20
0270	For embedment into pre-cast concrete panels, add				S.F.	14.40			14.40	15.10

04 21 13.15 Chimney

0010	CHIMNEY , excludes foundation, scaffolding, grout and reinforcing									
0100	Brick, 16" x 16", 8" flue	D-1	18.20	.879	V.L.F.	21.50	35		56.50	76.10
0150	16" x 20" with one 8" x 12" flue		16	1		34	40		74	97.10
0200	16" x 24" with two 8" x 8" flues		14	1.143		50.50	45.50		96	125
0250	20" x 20" with one 12" x 12" flue		13.70	1.168		38.50	46.50		85	113
0300	20" x 24" with two 8" x 12" flues		12	1.333		57	53		110	143
0350	20" x 32" with two 12" x 12" flues	▼	10	1.600		68	64		132	172
1800	Metal, high temp. steel jacket, factory lining, 24" diam.	E-2	65	.862	▼	210	41.50	23	274.50	330

04 21 Clay Unit Masonry

04 21 13 – Brick Masonry

04 21 13.15 Chimney		Crew	Daily Output	Labor Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
							Labor	Equipment		
1900	60" diameter	E-2	30	1.867	V.L.F.	765	90	50	905	1,050
2100	Paired concrete, brick lining, 200' high x 10' diam.					7,275			7,275	8,000
2800	500' x 20' diameter					12,700			12,700	14,000

04 21 13.18 Columns

0010	COLUMNS , solid, excludes scaffolding, grout and reinforcing	R042110-10								
0050	Brick, 8" x 8", 9 brick per V.L.F.	D-1	56	.286	V.L.F.	5.45	11.40		16.85	23
0100	12" x 8", 13.5 brick per V.L.F.		37	.432		8.15	17.25		25.40	35
0200	12" x 12", 20 brick per V.L.F.		25	.640		12.10	25.50		37.60	52
0300	16" x 12", 27 brick per V.L.F.		19	.842		16.35	33.50		49.85	68.50
0400	16" x 16", 36 brick per V.L.F.		14	1.143		22	45.50		67.50	93
0500	20" x 16", 45 brick per V.L.F.		11	1.455		27	58		85	118
0600	20" x 20", 56 brick per V.L.F.		9	1.778		34	71		105	145
0700	24" x 20", 68 brick per V.L.F.		7	2.286		41	91		132	184
0800	24" x 24", 81 brick per V.L.F.		6	2.667		49	106		155	214
1000	36" x 36", 182 brick per V.L.F.		3	5.333		110	213		323	440

04 21 13.30 Oversized Brick

0010	OVERSIZED BRICK , excludes scaffolding, grout and reinforcing									
0100	Veneer, 4" x 2.25" x 16"	D-8	387	.103	S.F.	6.45	4.21		10.66	13.40
0105	4" x 2.75" x 16"		412	.097		5.80	3.95		9.75	12.30
0110	4" x 4" x 16"		460	.087		5.30	3.54		8.84	11.20
0120	4" x 8" x 16"		533	.075		6.10	3.05		9.15	11.35
0125	Loadbearing, 6" x 4" x 16", grouted and reinforced		387	.103		9.05	4.21		13.26	16.30
0130	8" x 4" x 16", grouted and reinforced		327	.122		9.45	4.98		14.43	17.85
0135	6" x 8" x 16", grouted and reinforced		440	.091		8.70	3.70		12.40	15.15
0140	8" x 8" x 16", grouted and reinforced		400	.100		9.55	4.07		13.62	16.65
0145	Curtainwall/reinforced veneer, 6" x 4" x 16"		387	.103		13.20	4.21		17.41	21
0150	8" x 4" x 16"		327	.122		15.70	4.98		20.68	25
0155	6" x 8" x 16"		440	.091		13.30	3.70		17	20.50
0160	8" x 8" x 16"		400	.100		15.80	4.07		19.87	23.50
0200	For 1 to 3 slots in face, add					15%				
0210	For 4 to 7 slots in face, add					25%				
0220	For band beams, add					20%				
0230	For bullnose shapes, add					20%				
0240	For open end knockout, add					10%				
0250	For white or gray color group, add					10%				
0260	For 135 degree corner, add					250%				

04 21 13.35 Common Building Brick

0010	COMMON BUILDING BRICK , C62, TL lots, material only	R042110-20								
0020	Standard, minimum				M	350			350	385
0050	Average (select)				"	430			430	475

04 21 13.40 Structural Brick

0010	STRUCTURAL BRICK C652, Grade SW, incl. mortar, scaffolding not incl.									
0100	Standard unit, 4-5/8" x 2-3/4" x 9-5/8"	D-8	245	.163	S.F.	5.15	6.65		11.80	15.75
0120	Band beam		225	.178		9.65	7.25		16.90	21.50
0140	V cut band beam		225	.178		10.45	7.25		17.70	22.50
0160	Stretcher quoin, 5-5/8" x 2-3/4" x 9-5/8"		245	.163		10.10	6.65		16.75	21
0180	Corner quoin		245	.163		11.30	6.65		17.95	22.50
0200	Corner, 45 deg, 4-5/8" x 2-3/4" x 10-7/16"		235	.170		11.70	6.95		18.65	23.50

04 21 13.45 Face Brick

0010	FACE BRICK Material Only, C216, TL lots	R042110-20								
0300	Standard modular, 4" x 2-2/3" x 8", minimum				M	515			515	565

04 21 Clay Unit Masonry

04 21 13 – Brick Masonry

04 21 13.45 Face Brick		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0350	Maximum				M	675			675	745
0450	Economy, 4" x 4" x 8", minimum					775			775	855
0500	Maximum					1,000			1,000	1,100
0510	Economy, 4" x 4" x 12", minimum					1,225			1,225	1,350
0520	Maximum					1,600			1,600	1,750
0550	Jumbo, 6" x 4" x 12", minimum					1,475			1,475	1,625
0600	Maximum					1,925			1,925	2,125
0610	Jumbo, 8" x 4" x 12", minimum					1,475			1,475	1,625
0620	Maximum					1,925			1,925	2,125
0650	Norwegian, 4" x 3-1/5" x 12", minimum					980			980	1,075
0700	Maximum					1,275			1,275	1,400
0710	Norwegian, 6" x 3-1/5" x 12", minimum					1,425			1,425	1,575
0720	Maximum					1,875			1,875	2,050
0850	Standard glazed, plain colors, 4" x 2-2/3" x 8", minimum					1,550			1,550	1,725
0900	Maximum					2,025			2,025	2,225
1000	Deep trim shades, 4" x 2-2/3" x 8", minimum					1,925			1,925	2,125
1050	Maximum					2,150			2,150	2,375
1080	Jumbo utility, 4" x 4" x 12"					1,350			1,350	1,500
1120	4" x 8" x 8"					1,675			1,675	1,850
1140	4" x 8" x 16"					4,950			4,950	5,450
1260	Engineer, 4" x 3-1/5" x 8", minimum					520			520	570
1270	Maximum					700			700	770
1350	King, 4" x 2-3/4" x 10", minimum					460			460	505
1360	Maximum					560			560	620
1400	Norman, 4" x 2-3/4" x 12"					460			460	505
1450	Roman, 4" x 2" x 12"					460			460	505
1500	SCR, 6" x 2-2/3" x 12"					460			460	505
1550	Double, 4" x 5-1/3" x 8"					460			460	505
1600	Triple, 4" x 5-1/3" x 12"					460			460	505
1770	Standard modular, double glazed, 4" x 2-2/3" x 8"					2,275			2,275	2,500
1850	Jumbo, colored glazed ceramic, 6" x 4" x 12"					2,400			2,400	2,650
2050	Jumbo utility, glazed, 4" x 4" x 12"					4,500			4,500	4,950
2100	4" x 8" x 8"					5,300			5,300	5,825
2150	4" x 16" x 8"					6,200			6,200	6,825
2170	For less than truck load lots, add					15			15	16.5
2180	For buff or gray brick, add					16			16	17.6

04 21 26 – Glazed Structural Clay Tile Masonry

04 21 26.10 Structural Facing Tile										
0010	STRUCTURAL FACING TILE, std. colors, excl. scaffolding, grout, reinforcing									
0020	6T series, 5-1/3" x 12", 2.3 pieces per S.F., glazed 1 side, 2" thick	D-8	225	.178	S.F.	8.40	7.25		15.65	20
0100	4" thick		220	.182		11.50	7.40		18.90	24
0150	Glazed 2 sides		195	.205		14.95	8.35		23.30	29
0250	6" thick		210	.190		17.10	7.75		24.85	30.5
0300	Glazed 2 sides		185	.216		20.50	8.80		29.30	36
0400	8" thick		180	.222		22.50	9.05		31.55	38.5
0500	Special shapes, group 1		400	.100	Ea.	7.20	4.07		11.27	14.0
0550	Group 2		375	.107		11.65	4.34		15.99	19.4
0600	Group 3		350	.114		15.05	4.65		19.70	23.5
0650	Group 4		325	.123		31	5		36	42
0700	Group 5		300	.133		37.50	5.45		42.95	49
0750	Group 6		275	.145		51	5.90		56.90	65
1000	Fire rated, 4" thick, 1 hr. rating		210	.190	S.F.	16.40	7.75		24.15	30

04 21 Clay Unit Masonry

04 21 26 – Glazed Structural Clay Tile Masonry

04 21 26.10 Structural Facing Tile		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
300	Acoustic, 4" thick	D-8	210	.190	S.F.	34	7.75		41.75	49
400	8W series, 8" x 16", 1.125 pieces per S.F.									
050	2" thick, glazed 1 side	D-8	360	.111	S.F.	9.75	4.52		14.27	17.60
100	4" thick, glazed 1 side		345	.116		12.95	4.72		17.67	21.50
150	Glazed 2 sides		325	.123		15	5		20	24
200	6" thick, glazed 1 side		330	.121		22	4.93		26.93	31.50
250	8" thick, glazed 1 side		310	.129	↓	22.50	5.25		27.75	33
500	Special shapes, group 1		300	.133	Eq.	13.50	5.45		18.95	23
550	Group 2		280	.143		18.05	5.80		23.85	28.50
600	Group 3		260	.154		19.20	6.25		25.45	30.50
650	Group 4		250	.160		39	6.50		45.50	52.50
700	Group 5		240	.167		38	6.80		44.80	52
750	Group 6		230	.174	↓	81.50	7.10		88.60	101
800	4" thick, glazed 1 side		345	.116	S.F.	12.35	4.72		17.07	21
100	Acoustic, 4" thick	↓	345	.116	"	16.05	4.72		20.77	25
120	4W series, 8" x 8", 2.25 pieces per S.F.									
125	2" thick, glazed 1 side	D-8	360	.111	S.F.	8.75	4.52		13.27	16.45
130	4" thick, glazed 1 side		345	.116		10.35	4.72		15.07	18.55
135	Glazed 2 sides		325	.123		14.25	5		19.25	23
140	6" thick, glazed 1 side		330	.121		14.80	4.93		19.73	23.50
150	8" thick, glazed 1 side		310	.129	↓	21.50	5.25		26.75	31.50
155	Special shapes, group I		300	.133	Eq.	6.90	5.45		12.35	15.75
160	Group II	↓	280	.143	"	7.90	5.80		13.70	17.50
200	For designer colors, odd					25%				
300	For epoxy mortar joints, odd				S.F.	1.58			1.58	1.74

04 21 29 – Terra Cotta Masonry

04 21 29.10 Terra Cotta Masonry Components

TERRA COTTA MASONRY COMPONENTS										
020	Coping, split type, not glazed, 9" wide	D-1	90	.178	L.F.	10.40	7.10		17.50	22
100	13" wide		80	.200		15.75	7.95		23.70	29.50
200	Coping, split type, glazed, 9" wide		90	.178		17.40	7.10		24.50	30
250	13" wide	↓	80	.200	↓	22.50	7.95		30.45	37
500	Partition or back-up blocks, scored, in C.L. lots									
700	Non-load bearing 12" x 12", 3" thick, special order	D-8	550	.073	S.F.	26	2.96		28.96	33
750	4" thick, standard		500	.080		7.10	3.26		10.36	12.70
800	6" thick		450	.089		8.70	3.62		12.32	15
850	8" thick		400	.100		11.05	4.07		15.12	18.35
1000	Load bearing, 12" x 12", 4" thick, in walls		500	.080		7.60	3.26		10.86	13.25
1050	In floors		750	.053		7.60	2.17		9.77	11.65
1200	6" thick, in walls		450	.089		8.70	3.62		12.32	15
1250	In floors		675	.059		8.70	2.41		11.11	13.20
1400	8" thick, in walls		400	.100		11.05	4.07		15.12	18.35
1450	In floors		575	.070		11.05	2.83		13.88	16.50
1600	10" thick, in walls, special order		350	.114		23.50	4.65		28.15	32.50
1650	In floors, special order		500	.080		23.50	3.26		26.76	30.50
1800	12" thick, in walls, special order		300	.133		28	5.45		33.45	38.50
1850	In floors, special order	↓	450	.089		28	3.62		31.62	36
2000	For reinforcing with steel rods, add to above					15%	5%			
2100	For smooth tile instead of scored, add					3.74			3.74	4.11
2200	For L.C.L. quantities, odd				↓	10%	10%			

04 21 Clay Unit Masonry

04 21 29 - Terra Cotta Masonry

04 21 29.20 Terra Cotta Tile		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
							Labor	Equipment		
0010	TERRA COTTA TILE , on walls, dry set, 1/2" thick									
0100	Square, hexagonal or lattice shapes, unglazed	1 Tlf	135	.059	S.F.	6.35	2.41		8.76	10.36
0300	Glozed, plain colors		130	.062		8.75	2.51		11.26	13.26
0400	Intense colors		125	.064		10.20	2.61		12.81	15.05

04 22 Concrete Unit Masonry

04 22 10 - Concrete Masonry Units

04 22 10.11 Autoclave Aerated Concrete Block										
0010	AUTOCALVE AERATED CONCRETE BLOCK , excl. scaffolding, grout & reinforcing									
0050	Solid, 4" x 12" x 24", incl mortar	G	D-8	600	.067	S.F.	1.39	2.71	4.10	5.45
0060	6" x 12" x 24"	G		600	.067		2.08	2.71	4.79	6.40
0070	8" x 8" x 24"	G		575	.070		2.78	2.83	5.61	7.35
0080	10" x 12" x 24"	G		575	.070		3.40	2.83	6.23	8
0090	12" x 12" x 24"	G		550	.073		4.16	2.96	7.12	9.05

04 22 10.12 Chimney Block

0010	CHIMNEY BLOCK , excludes scaffolding, grout and reinforcing									
0220	1 piece, with 8" x 8" flue, 16" x 16"		D-1	28	.571	V.L.F.	17.55	23	40.55	54
0230	2 piece, 16" x 16"			26	.615		15.05	24.50	39.55	53.50
0240	2 piece, with 8" x 12" flue, 16" x 20"			24	.667		30	26.50	56.50	73

04 22 10.14 Concrete Block, Back-Up

0010	CONCRETE BLOCK, BACK-UP , C90, 2000 psi									
0020	Normal weight, 8" x 16" units, tooled joint 1 side									
0050	Not-reinforced, 2000 psi, 2" thick		D-8	475	.084	S.F.	1.39	3.43	4.82	6.35
0200	4" thick			460	.087		1.58	3.54	5.12	7.10
0300	6" thick			440	.091		2.19	3.70	5.89	8
0350	8" thick			400	.100		2.49	4.07	6.56	8.90
0400	10" thick			330	.121		3.16	4.93	8.09	10.95
0450	12" thick		D-9	310	.155		3.56	6.15	9.71	13.20
1000	Reinforced, alternate courses, 4" thick		D-8	450	.089		1.72	3.62	5.34	7.35
1100	6" thick			430	.093		2.34	3.79	6.13	8.25
1150	8" thick			395	.101		2.65	4.12	6.77	9.10
1200	10" thick			320	.125		3.31	5.10	8.41	11.35
1250	12" thick		D-9	300	.160		3.71	6.40	10.11	13.75

04 22 10.16 Concrete Block, Bond Beam

0010	CONCRETE BLOCK, BOND BEAM , C90, 2000 psi									
0020	Not including grout or reinforcing									
0125	Regular block, 6" thick		D-8	584	.068	L.F.	2.34	2.79	5.13	6.80
0130	8" high, 8" thick		"	565	.071		2.52	2.88	5.40	7.10
0150	12" thick		D-9	510	.094		3.53	3.75	7.28	9.55
0525	Lightweight, 6" thick		D-8	592	.068		2.55	2.75	5.30	6.95
0530	8" high, 8" thick		"	575	.070		3.09	2.83	5.92	7.65
0550	12" thick		D-9	520	.092		4.15	3.68	7.83	10.10
2000	Including grout and 2 #5 bars									
2100	Regular block, 8" high, 8" thick		D-8	300	.133	L.F.	4.55	5.45	10	13.20
2150	12" thick		D-9	250	.192		6.10	7.65	13.75	18.30
2500	Lightweight, 8" high, 8" thick		D-8	305	.131		5.15	5.35	10.50	13.70
2550	12" thick		D-9	255	.188		6.75	7.50	14.25	18.75

4 22 Concrete Unit Masonry

4 22 10 - Concrete Masonry Units

4 22 10.18 Concrete Block, Column		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
10	CONCRETE BLOCK, COLUMN or pilaster									
50	Including vertical reinforcing (4-#4 bars) and grout									
60	1 piece unit, 16" x 16"	D-1	26	.615	V.L.F.	18.10	24.50		42.60	57
70	2 piece units, 16" x 20"		24	.667		24	26.50		50.50	66
80	20" x 20"		22	.727		35	29		64	82.50
90	22" x 24"		18	.889		49	35.50		84.50	107
00	20" x 32"		14	1.143		53	45.50		98.50	128

4 22 10.19 Concrete Block, Insulation Inserts

10	CONCRETE BLOCK, INSULATION INSERTS									
00	Styrofoam, plant installed, add to block prices									
00	8" x 16" units, 6" thick				S.F.	1.14			1.14	1.25
50	8" thick					1.14			1.14	1.25
00	10" thick					1.93			1.93	2.12
50	12" thick					2			2	2.20
00	8" x 8" units, 8" thick					.94			.94	1.03
50	12" thick					1.14			1.14	1.25

4 22 10.23 Concrete Block, Decorative

10	CONCRETE BLOCK, DECORATIVE, C90, 2000 psi									
20	Embossed, simulated brick face									
00	8" x 16" units, 4" thick	D-8	400	.100	S.F.	3.54	4.07		7.61	10.05
00	8" thick		340	.118		4.85	4.79		9.64	12.60
50	12" thick		300	.133		6.35	5.45		11.80	15.20
00	Embossed both sides									
00	8" thick	D-8	300	.133	S.F.	5.45	5.45		10.90	14.20
50	12" thick	"	275	.145	"	6.85	5.90		12.75	16.50
00	Fluted high strength									
00	8" x 16" x 4" thick, flutes 1 side,	D-8	345	.116	S.F.	4.20	4.72		8.92	11.75
50	Flutes 2 sides		335	.119		5.10	4.86		9.96	12.95
00	8" thick		300	.133		6.60	5.45		12.05	15.45
50	For special colors, odd					.41			.41	.45
00	Deep grooved, smooth face									
50	8" x 16" x 4" thick	D-8	345	.116	S.F.	2.75	4.72		7.47	10.15
00	8" thick	"	300	.133	"	4.70	5.45		10.15	13.35
00	Formblock, incl. inserts & reinforcing									
50	8" x 16" x 8" thick	D-8	345	.116	S.F.	4.77	4.72		9.49	12.40
00	12" thick	"	310	.129	"	5.95	5.25		11.20	14.50
00	Ground face									
00	8" x 16" x 4" thick	D-8	345	.116	S.F.	3.35	4.72		8.07	10.85
50	6" thick		325	.123		4.83	5		9.83	12.85
00	8" thick		300	.133		6.40	5.45		11.85	15.20
50	12" thick	D-9	265	.181		5.80	7.20		13	17.25
00	For special colors, odd, minimum					15%				
50	For special colors, odd, maximum					45%				
00	Slump block									
00	4" face height x 16" x 4" thick	D-1	165	.097	S.F.	3.53	3.86		7.39	9.75
50	6" thick		160	.100		4.85	3.99		8.84	11.35
00	8" thick		155	.103		5.05	4.11		9.16	11.75
250	10" thick		140	.114		10	4.55		14.55	17.90
300	12" thick		130	.123		10.25	4.90		15.15	18.65
400	6" face height x 16" x 6" thick		155	.103		4.51	4.11		8.62	11.15
450	8" thick		150	.107		6.65	4.25		10.90	13.70
500	10" thick		130	.123		10.40	4.90		15.30	18.85

04 22 Concrete Unit Masonry

04 22 10 - Concrete Masonry Units

04 22 10.23 Concrete Block, Decorative		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
4550	12" thick	D-1	120	.133	S.F.	10.70	5.30		16	19.3
5000	Split rib profile units, 1" deep ribs, 8 ribs									
5100	8" x 16" x 4" thick	D-8	345	.116	S.F.	3.49	4.72		8.21	11.9
5150	6" thick		325	.123		4.01	5		9.01	11.9
5200	8" thick	▼	300	.133		4.66	5.45		10.11	13.3
5250	12" thick	D-9	275	.175		5.50	6.95		12.45	16.3
5400	For special deeper colors, 4" thick, add					1.15			1.15	1.2
5450	12" thick, add					1.19			1.19	1.3
5600	For white, 4" thick, add					1.15			1.15	1.2
5650	6" thick, add					1.14			1.14	1.2
5700	8" thick, add					1.20			1.20	1.3
5750	12" thick, add				▼	1.23			1.23	1.3
6000	Split face									
6100	8" x 16" x 4" thick	D-8	350	.114	S.F.	3.16	4.65		7.81	10.4
6150	6" thick		325	.123		3.65	5		8.65	11.5
6200	8" thick	▼	300	.133		4.22	5.45		9.67	12.8
6250	12" thick	D-9	270	.178		5.10	7.10		12.20	16.3
6300	For scored, add					.35			.35	.3
6400	For special deeper colors, 4" thick, add					.67			.67	.7
6450	6" thick, add					.66			.66	.7
6500	8" thick, add					.68			.68	.7
6550	12" thick, add					.70			.70	.7
6650	For white, 4" thick, add					1.14			1.14	1.2
6700	6" thick, add					1.13			1.13	1.2
6750	8" thick, add					1.16			1.16	1.2
6800	12" thick, add				▼	1.19			1.19	1.2
7000	Scored ground face, 2 to 5 scores									
7100	8" x 16" x 4" thick	D-8	340	.118	S.F.	4.94	4.79		9.73	12.7
7150	6" thick		310	.129		5.65	5.25		10.90	14.1
7200	8" thick	▼	290	.138		6.60	5.60		12.20	15.8
7250	12" thick	D-9	265	.181	▼	8.20	7.20		15.40	19.9
8000	Hexagonal face profile units, 8" x 16" units									
8100	4" thick, hollow	D-8	340	.118	S.F.	3.27	4.79		8.06	10.8
8200	Solid		340	.118		4.20	4.79		8.99	11.8
8300	6" thick, hollow		310	.129		3.50	5.25		8.75	11.8
8350	8" thick, hollow	▼	290	.138	▼	4.75	5.60		10.35	13.7
8500	For stocked bond, add						26%			
8550	For high rise construction, add per story	D-8	67.80	.590	M.S.F.		24		24	36.5
8600	For scored block, add					10%				
8650	For honed or ground face, per face, add				Ex.	.38			.38	.4
8700	For honed or ground end, per end, add				"	2.98			2.98	3.2
8750	For bullnose block, add					10%				
8800	For special color, add					13%				

04 22 10.24 Concrete Block, Exterior

0010	CONCRETE BLOCK, EXTERIOR, C90, 2000 psi									
0020	Reinforced alt courses, tooled joints 2 sides									
0100	Normal weight, 8" x 16" x 6" thick	D-8	395	.101	S.F.	2.57	4.12		6.69	9
0200	8" thick		360	.111		3.34	4.52		7.86	10.5
0250	10" thick	▼	290	.138		4.30	5.60		9.90	13.2
0300	12" thick	D-9	250	.192		4.27	7.65		11.92	16.2
0500	Lightweight, 8" x 16" x 6" thick	D-8	450	.089		2.74	3.62		6.36	8.4
0600	8" thick	▼	430	.093	▼	3.48	3.79		7.27	9.5

4 22 Concrete Unit Masonry

4 22 10 – Concrete Masonry Units

22 10.24 Concrete Block, Exterior				Daily Labor-Hours		2012 Bare Costs		Total	Total Ind O&P
		Crew	Output	Unit	Material	Labor	Equipment		
50	10" thick	D-8	395	.101	S.F.	4.33	4.12	8.45	10.95
00	12" thick	D-9	350	.137		6.35	5.45	11.80	15.25

22 10.26 Concrete Block Foundation Wall

CONCRETE BLOCK FOUNDATION WALL, C90/C145									
50	Normal-weight, cut joints, horiz joint reinf, no vert reinf								
00	Hollow, 8" x 16" x 6" thick	D-8	455	.088	S.F.	2.65	3.58	6.23	8.30
50	8" thick		425	.094		2.96	3.83	6.79	9.05
00	10" thick	▼	350	.114		3.63	4.65	8.28	11
50	12" thick	D-9	300	.160		4.04	6.40	10.44	14.10
00	Solid, 8" x 16" block, 6" thick	D-8	440	.091		2.52	3.70	6.22	8.35
50	8" thick	"	415	.096		3.90	3.92	7.82	10.20
00	12" thick	D-9	350	.137	▼	5.45	5.45	10.90	14.25

22 10.28 Concrete Block, High Strength

CONCRETE BLOCK, HIGH STRENGTH									
50	Hollow, reinforced alternate courses, 8" x 16" units								
00	3500 psi, 4" thick	D-8	440	.091	S.F.	2.25	3.70	5.95	8.10
50	6" thick		395	.101		2.48	4.12	6.60	8.95
00	8" thick	▼	360	.111		3.25	4.52	7.77	10.45
50	12" thick	D-9	250	.192		4.15	7.65	11.80	16.10
00	5000 psi, 4" thick	D-8	440	.091		2.47	3.70	6.17	8.30
50	6" thick		395	.101		3.06	4.12	7.18	9.55
00	8" thick	▼	360	.111		4.07	4.52	8.59	11.35
50	12" thick	D-9	300	.160	▼	6.05	6.40	12.45	16.30
00	For 75% solid block, odd				30%				
50	For 100% solid block, odd				50%				

22 10.30 Concrete Block, Interlocking

CONCRETE BLOCK, INTERLOCKING									
50	Not including grout or reinforcing								
00	8" x 16" units, 2,000 psi, 8" thick	D-1	245	.065	S.F.	2.72	2.60	5.32	6.90
50	12" thick	▼	220	.073		4.03	2.90	6.93	8.80
00	16" thick	▼	185	.086		6.05	3.45	9.50	11.85
50	Including grout & reinforcing, 8" thick	D-4	245	.131		7.35	5.25	.52	13.12
00	12" thick		220	.145		8.90	5.80	.58	15.28
50	16" thick	▼	185	.173	▼	11.10	6.90	.69	18.69

22 10.32 Concrete Block, Lintels

CONCRETE BLOCK, LINTELS, C90, normal weight									
50	Including grout and horizontal reinforcing								
00	8" x 8" x 8", 1 #4 bar	D-4	300	.107	L.F.	4.87	4.27	.42	9.56
50	2 #4 bars		295	.108		5.10	4.34	.43	9.87
00	8" x 16" x 8", 1 #4 bar		275	.116		3.38	4.66	.46	8.50
50	2 #4 bars		270	.119		3.60	4.74	.47	8.81
00	12" x 8" x 8", 1 #4 bar		275	.116		6.80	4.66	.46	11.92
50	2 #4 bars		270	.119		7.05	4.74	.47	12.26
00	2 #5 bars		270	.119		7.30	4.74	.47	12.51
50	2 #6 bars		265	.121		7.60	4.83	.48	12.91
00	12" x 16" x 8", 1 #4 bar		250	.128		10.80	5.10	.51	16.41
50	2 #3 bars		245	.131		10.80	5.25	.52	16.57
00	2 #4 bars		245	.131		11	5.25	.52	16.77
50	2 #5 bars	▼	240	.133	▼	11.25	5.35	.53	17.13
00									21

04 22 Concrete Unit Masonry

04 22 10 - Concrete Masonry Units

04 22 10.34 Concrete Block, Partitions

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. O&M
							Labor	Equipment		
0010	CONCRETE BLOCK, PARTITIONS, excludes scaffolding									
0100	Acoustical slotted block									
0200	4" thick, type A-1	D-8	315	.127	S.F.	3.79	5.15		8.94	11.2
0210	8" thick		275	.145		4.81	5.90		10.71	14.1
0250	8" thick, type Q		275	.145		8.45	5.90		14.35	18.7
0260	4" thick, type RSC		315	.127		5.90	5.15		11.05	14.1
0270	6" thick		295	.136		5.90	5.50		11.40	14.7
0280	8" thick		275	.145		5.90	5.90		11.80	15.3
0290	12" thick		250	.160		5.90	6.50		12.40	16.2
0300	8" thick, type RSR		275	.145		5.90	5.90		11.80	15.3
0400	8" thick, type RSC/RF		275	.145		6.60	5.90		12.50	16.2
0410	10" thick		260	.154		7.10	6.25		13.35	17.3
0420	12" thick		250	.160		7.60	6.50		14.10	18.3
0430	12" thick, type RSC/RF-4		250	.160		9.15	6.50		15.65	19.9
0500	NRC .60 type R, 8" thick		265	.151		8	6.15		14.15	18.1
0600	NRC .65 type RR, 8" thick		265	.151		7.35	6.15		13.50	17.2
0700	NRC .65 type 4R-RF, 8" thick		265	.151		8.25	6.15		14.40	18.7
0710	NRC .70 type R, 12" thick		245	.163		8.65	6.65		15.30	19.5
1000	Lightweight block, tooled joints, 2 sides, hollow									
1100	Not reinforced, 8" x 16" x 4" thick	D-8	440	.091	S.F.	1.64	3.70		5.34	7.4
1150	6" thick		410	.098		2.37	3.97		6.34	8.6
1200	8" thick		385	.104		2.88	4.23		7.11	9.5
1250	10" thick		370	.108		3.48	4.40		7.88	10.9
1300	12" thick	D-9	350	.137		4.33	5.45		9.78	13.3
2000	Not reinforced, 8" x 24" x 4" thick, hollow		460	.104		1.21	4.16		5.37	7.6
2100	6" thick		440	.109		1.71	4.35		6.06	8.4
2150	8" thick		415	.116		2.12	4.61		6.73	9.3
2200	10" thick		385	.125		2.56	4.97		7.53	10.3
2250	12" thick		365	.132		3.17	5.25		8.42	11.4
2800	Solid, not reinforced, 8" x 16" x 2" thick	D-8	440	.091		1.46	3.70		5.16	7.2
2900	4" thick		420	.095		2.36	3.88		6.24	8.4
2950	6" thick		390	.103		2.63	4.17		6.80	9.2
3000	8" thick		365	.110		3.38	4.46		7.84	10.4
3050	10" thick		350	.114		4.22	4.65		8.87	11.6
3100	12" thick	D-9	330	.145		6.25	5.80		12.05	15.8
4000	Regular block, tooled joints, 2 sides, hollow									
4100	Not reinforced, 8" x 16" x 4" thick	D-8	430	.093	S.F.	1.49	3.79		5.28	7.5
4150	6" thick		400	.100		2.10	4.07		6.17	8.4
4200	8" thick		375	.107		2.40	4.34		6.74	9.2
4250	10" thick		360	.111		3.07	4.52		7.59	10.2
4300	12" thick	D-9	340	.141		3.47	5.65		9.12	12.5
4500	Reinforced alternate courses, 8" x 16" x 4" thick	D-8	425	.094		1.63	3.83		5.46	7.6
4550	6" thick		395	.101		2.25	4.12		6.37	8.6
4600	8" thick		370	.108		2.56	4.40		6.96	9.4
4650	10" thick		355	.113		3.49	4.59		8.08	10.8
4700	12" thick	D-9	335	.143		3.62	5.70		9.32	12.4
4900	Solid, not reinforced, 2" thick	D-8	435	.092		1.34	3.74		5.08	7.1
5000	3" thick		430	.093		1.60	3.79		5.39	7.4
5050	4" thick		415	.096		1.81	3.92		5.73	7.9
5100	6" thick		385	.104		1.98	4.23		6.21	8.5
5150	8" thick		360	.111		3.34	4.52		7.86	10.5
5200	12" thick	D-9	325	.148		4.87	5.90		10.77	14.2

22 Concrete Unit Masonry

22 10 – Concrete Masonry Units

22 10.34 Concrete Block, Partitions		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0	Solid, reinforced alternate courses, 4" thick	D-8	420	.095	S.F.	1.92	3.88		5.80	7.95
0	6" thick	↓	380	.105	↓	2.08	4.28		6.36	8.75
0	8" thick	↓	355	.113	↓	3.45	4.59		8.04	10.75
0	12" thick	D-9	320	.150	↓	4.43	6		10.43	13.90

22 10.38 Concrete Brick

CONCRETE BRICK, C55, grade N, type 1										
0	Regular, 4 x 2-1/4 x 8	D-8	660	.061	Eq.	.50	2.47		2.97	4.28
5	Rusticated, 4 x 2-1/4 x 8	↓	660	.061	↓	.56	2.47		3.03	4.35
0	Frag, 4 x 2-1/4 x 8	↓	660	.061	↓	.54	2.47		3.01	4.32
0	Double, 4 x 4-7/8 x 8	↓	535	.075	↓	.88	3.04		3.92	5.55

22 10.42 Concrete Block, Screen Block

CONCRETE BLOCK, SCREEN BLOCK										
0	8" x 16", 4" thick	D-8	330	.121	S.F.	1.97	4.93		6.90	9.60
0	8" thick	↓	270	.148	↓	2.99	6.05		9.04	12.40
0	12" x 12", 4" thick	↓	290	.138	↓	2.21	5.60		7.81	10.95
0	8" thick	↓	250	.160	↓	3.06	6.50		9.56	13.20

22 10.44 Glazed Concrete Block

GLAZED CONCRETE BLOCK C744										
0	Single face, 8" x 16" units, 2" thick	D-8	360	.111	S.F.	9.20	4.52		13.72	17
0	4" thick	↓	345	.116	↓	9.45	4.72		14.17	17.55
0	6" thick	↓	330	.121	↓	11.55	4.93		16.48	20
0	8" thick	↓	310	.129	↓	9.95	5.25		15.20	18.90
0	10" thick	↓	295	.136	↓	12.50	5.50		18	22
0	12" thick	D-9	280	.171	↓	13.30	6.85		20.15	25
0	Double face, 8" x 16" units, 4" thick	D-8	340	.118	↓	13.85	4.79		18.64	22.50
0	6" thick	↓	320	.125	↓	16.25	5.10		21.35	25.50
0	8" thick	↓	300	.133	↓	17.05	5.45		22.50	27
0	Jamb, bullnose or square, single face, 8" x 16", 2" thick	↓	315	.127	Eq.	17.50	5.15		22.65	27
0	4" thick	↓	285	.140	"	20.50	5.70		26.20	31
0	Caps, bullnose or square, 8" x 16", 2" thick	↓	420	.095	L.F.	17.80	3.88		21.68	25.50
0	4" thick	↓	380	.105	↓	18.50	4.28		22.78	27
0	Cave base, 8" x 16", 2" thick	↓	315	.127	↓	13.60	5.15		18.75	23
0	4" thick	↓	285	.140	↓	8.65	5.70		14.35	18.20
0	6" thick	↓	265	.151	↓	9.30	6.15		15.45	19.50
0	8" thick	↓	245	.163	↓	9.75	6.65		16.40	21

23 Glass Unit Masonry

23 13 – Vertical Glass Unit Masonry

23 13.10 Glass Block

GLASS BLOCK										
0	Plain, 4" thick, under 1,000 S.F., 6" x 6"	D-8	115	.348	S.F.	28.50	14.15		42.65	53
0	8" x 8"	↓	160	.250	↓	15.80	10.20		26	32.50
0	end block	↓	160	.250	↓	52.50	10.20		62.70	73
0	90 deg corner	↓	160	.250	↓	56.50	10.20		66.70	77.50
0	45 deg corner	↓	160	.250	↓	49	10.20		59.20	69
0	12" x 12"	↓	175	.229	↓	24	9.30		33.30	40.50
0	4" x 8"	↓	160	.250	↓	16.20	10.20		26.40	33
0	6" x 8"	↓	160	.250	↓	15.65	10.20		25.85	32.50
0	1,000 to 5,000 S.F., 6" x 6"	↓	135	.296	↓	28	12.05		40.05	48.50
0	8" x 8"	↓	190	.211	↓	15.50	8.55		24.05	30

04 23 Glass Unit Masonry

04 23 13 - Vertical Glass Unit Masonry

04 23 13.10 Glass Block		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0400	12" x 12"	D-8	215	.186	S.F.	23.50	7.55		31.05	37.5
0410	4" x 8"		215	.186		6.40	7.55		13.95	18.5
0420	6" x 8"		215	.186		6.10	7.55		13.65	18
0500	Over 5,000 S.F., 6" x 6"		145	.276		27	11.25		38.25	47
0550	8" x 8"		215	.186		15	7.55		22.55	28
0600	12" x 12"		240	.167		23	6.80		29.80	35.5
0610	4" x 8"		240	.167		6	6.80		12.80	16.8
0620	6" x 8"		240	.167		6.10	6.80		12.90	16.9
0700	For solar reflective blacks, add					100%				
1000	Thinline, plain, 3-1/8" thick, under 1,000 S.F., 6" x 6"	D-8	115	.348	S.F.	19.90	14.15		34.05	43.5
1050	8" x 8"		160	.250		11	10.20		21.20	27.5
1200	Over 5,000 S.F., 6" x 6"		145	.276		18.70	11.25		29.95	37.5
1250	8" x 8"		215	.186		10.50	7.55		18.05	23
1400	For cleaning block after installation (both sides), add		1000	.040		.11	1.63		1.74	2.5
4000	Accessories									
4100	Anchors, 20 ga. galv., 1-3/4" wide x 24" long				Ea.	3.88			3.88	4.3
4200	Emulsion asphalt				Gal.	8.10			8.10	8.9
4300	Expansion joint, fiberglass				L.F.	.57			.57	.6
4400	Steel mesh, double galvanized				"	.95			.95	1.0

04 24 Adobe Unit Masonry

04 24 16 - Manufactured Adobe Unit Masonry

04 24 16.06 Adobe Brick

0010	ADOBE BRICK, Semi-stabilized, with cement mortar									
0060	Brick, 10" x 4" x 14", 2.6/S.F.	G	D-8	560	.071	S.F.	3.84	2.91	6.75	8.8
0080	12" x 4" x 16", 2.3/S.F.	G		580	.069		6.10	2.81	8.91	10.9
0100	10" x 4" x 16", 2.3/S.F.	G		590	.068		5.45	2.76	8.21	10.1
0120	8" x 4" x 16", 2.3/S.F.	G		560	.071		4.41	2.91	7.32	9.2
0140	4" x 4" x 16", 2.3/S.F.	G		540	.074		3.98	3.01	6.99	8.9
0160	6" x 4" x 16", 2.3/S.F.	G		540	.074		3.85	3.01	6.86	8.8
0180	4" x 4" x 12", 3.0/S.F.	G		520	.077		3.82	3.13	6.95	8.9
0200	8" x 4" x 12", 3.0/S.F.	G		520	.077		3.80	3.13	6.93	8.9

04 25 Unit Masonry Panels

04 25 20 - Pre-Fabricated Masonry Panels

04 25 20.10 Brick and Epoxy Mortar Panels

0010	BRICK AND EPOXY MORTAR PANELS									
0020	Prefabricated brick & epoxy mortar, 4" thick, minimum		C-11	775	.093	S.F.	4.95	4.51	2.36	11.82
0100	Maximum		"	500	.144		6.05	7	3.66	16.71
0200	For 2" concrete back-up, add						50%			
0300	For 1" urethane & 3" concrete back-up, add						70%			

4 27 Multiple-Wythe Unit Masonry

4 27 10 - Multiple-Wythe Masonry

				Daily Labor-	2012 Bare Costs			Total				
				Crew	Output	Hours	Unit	Material	Labor	Equipment	Total	Total Ind O&P
27 10.20 Cavity Walls												
CAVITY WALLS, brick and CMU, includes joint reinforcing and ties												
10	4" face brick, 4" block			D-8	165	.242	S.F.	5.80	9.85		15.65	21.50
00	6" block				145	.276		6.30	11.25		17.55	24
00	8" block				125	.320		6.50	13		19.50	27

4 27 10.30 Brick Walls

BRICK WALLS, including mortar, excludes scaffolding R042110-20												
Estimating by number of brick												
10	Face brick, 4" thick wall, 6.75 brick/S.F.			D-8	1.45	27.586	M	610	1,125		1,735	2,375
50	Common brick, 4" thick wall, 6.75 brick/S.F.				1.60	25		440	1,025		1,465	2,000
04	8" thick, 13.50 bricks per S.F.				1.80	22.222		460	905		1,365	1,875
50	12" thick, 20.25 bricks per S.F.				1.90	21.053		465	855		1,320	1,800
04	16" thick, 27.00 bricks per S.F.				2	20		470	815		1,285	1,750
00	Reinforced, face brick, 4" thick wall, 6.75 brick/S.F.				1.40	28.571		635	1,175		1,810	2,450
20	Common brick, 4" thick wall, 6.75 brick/S.F.				1.55	25.806		465	1,050		1,515	2,100
50	8" thick, 13.50 bricks per S.F.				1.75	22.857		485	930		1,415	1,925
00	12" thick, 20.25 bricks per S.F.				1.85	21.622		485	880		1,365	1,850
50	16" thick, 27.00 bricks per S.F.				1.95	20.513		495	835		1,330	1,800
Alternate method of figuring by square foot												
90	Face brick, 4" thick wall, 6.75 brick/S.F.			D-8	215	.186	S.F.	4.12	7.55		11.67	16
00	Common brick, 4" thick wall, 6.75 brick/S.F.				240	.167		2.98	6.80		9.78	13.55
50	8" thick, 13.50 bricks per S.F.				135	.296		6.20	12.05		18.25	25
00	12" thick, 20.25 bricks per S.F.				95	.421		9.35	17.15		26.50	36.50
50	16" thick, 27.00 bricks per S.F.				75	.533		12.70	21.50		34.20	47
00	Reinforced, face brick, 4" thick wall, 6.75 brick/S.F.				210	.190		4.29	7.75		12.04	16.40
20	Common brick, 4" thick wall, 6.75 brick/S.F.				235	.170		3.15	6.95		10.10	13.90
50	8" thick, 13.50 bricks per S.F.				130	.308		6.55	12.50		19.05	26
00	12" thick, 20.25 bricks per S.F.				90	.444		9.85	18.10		27.95	38.50
50	16" thick, 27.00 bricks per S.F.				70	.571		13.35	23.50		36.85	49.50

4 27 10.40 Steps

STEPS												
10	Entry steps, select common brick			D-1	.30	53.333	M	430	2,125		2,555	3,675

4 41 Dry-Placed Stone

4 41 10 - Dry Placed Stone

4 41 10.10 Rough Stone Wall

ROUGH STONE WALL, Dry												
011	Dry laid (no mortar), under 18" thick	G	D-1	60	.267	C.F.		11.65	10.65		22.30	29
100	Random fieldstone, under 18" thick	G	D-12	60	.533			11.65	21.50		33.15	45.50
150	Over 18" thick	G	"	63	.508			14	20.50		34.50	46.50
500	Field stone veneer	G	D-8	120	.333	S.F.		10.25	13.55		23.80	32
510	Volley stone veneer	G		120	.333			10.25	13.55		23.80	32
520	River stone veneer	G		120	.333			10.25	13.55		23.80	32
600	Rubble stone walls, in mortar bed, up to 18" thick	G	D-11	75	.320	C.F.		14.10	13.40		27.50	36

04 43 Stone Masonry

04 43 10 - Masonry with Natural and Processed Stone

04 43 10.05 Ashlar Veneer

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&M
0011	ASHLAR VENEER 4" + or - thick, random or random rectangular									
0150	Sawn face, split joints, low priced stone	D-8	140	.286	S.F.	8.55	11.65		20.20	27.15
0200	Medium priced stone		130	.308		10.35	12.50		22.85	30.35
0300	High priced stone		120	.333		14.80	13.55		28.35	37.15
0600	Seam face, split joints, medium price stone		125	.320		7.55	13		20.55	28.15
0700	High price stone		120	.333		12.20	13.55		25.75	34.15
1000	Split or rock face, split joints, medium price stone		125	.320		8.40	13		21.40	29.15
1100	High price stone	▼	120	.333	▼	14	13.55		27.55	36.15

04 43 10.10 Bluestone

0010	BLUESTONE , cut to size									
0500	Sills, natural cleft, 10" wide to 6' long, 1-1/2" thick	D-11	70	.343	L.F.	13.35	14.40		27.75	36.15
0550	2" thick	"	63	.381		14.60	15.95		30.55	40.15
1000	Stair treads, natural cleft, 12" wide, 6' long, 1-1/2" thick	D-10	115	.278		30	12.10	3.90	46	55.15
1050	2" thick		105	.305		30	13.25	4.27	47.52	57.15
1100	Smooth finish, 1-1/2" thick		115	.278		15	12.10	3.90	31	39.15
1300	Thermal finish, 1-1/2" thick		115	.278		15	12.10	3.90	31	39.15
1350	2" thick	▼	105	.305	▼	15	13.25	4.27	32.52	41.15

04 43 10.45 Granite

0010	GRANITE , cut to size									
0050	Veneer, polished face, 3/4" to 1-1/2" thick									
0150	Low price, gray, light gray, etc.	D-10	130	.246	S.F.	26.50	10.70	3.45	40.65	49.15
0220	High price, red, black, etc.	"	130	.246	"	42	10.70	3.45	56.15	66.15
0300	1-1/2" to 2-1/2" thick, veneer									
0350	Low price, gray, light gray, etc.	D-10	130	.246	S.F.	28.50	10.70	3.45	42.65	51.15
0550	High price, red, black, etc.	"	130	.246	"	52.50	10.70	3.45	66.65	77.15
0700	2-1/2" to 4" thick, veneer									
0750	Low price, gray, light gray, etc.	D-10	110	.291	S.F.	38.50	12.65	4.08	55.23	66.15
0950	High price, red, black, etc.	"	110	.291		63	12.65	4.08	79.73	93.15
1000	For bush hammered finish, deduct					5%				
1050	Coarse rubbed finish, deduct					10%				
1100	Honed finish, deduct					5%				
1150	Thermal finish, deduct				▼	18%				
2450	For radius under 5', add				L.F.	100%				
2500	Steps, copings, etc., finished on more than one surface									
2550	Minimum	D-10	50	.640	C.F.	91	28	8.95	127.95	152.15
2600	Maximum	"	50	.640	"	146	28	8.95	182.95	212.15
2800	Pavers, 4" x 4" x 4" blocks, split face and joints									
2850	Minimum	D-11	80	.300	S.F.	13.10	12.60		25.70	33.15
2900	Maximum	"	80	.300		29	12.60		41.60	51.15
4000	Soffits, 2" thick, minimum	D-13	35	1.371		37.50	58	12.80	108.30	143.15
4100	Maximum		35	1.371		91.50	58	12.80	162.30	202.15
4200	4" thick, minimum		35	1.371		63	58	12.80	133.80	171.15
4300	Maximum	▼	35	1.371	▼	119	58	12.80	189.80	233.15

04 43 10.50 Lightweight Natural Stone

0011	LIGHTWEIGHT NATURAL STONE Lava type										
0100	Veneer, rubble face, sawed back, irregular shapes	G	D-10	130	.246	S.F.	6.30	10.70	3.45	20.45	27.15
0200	Sawed face and back, irregular shapes	G	"	130	.246	"	6.30	10.70	3.45	20.45	27.15

04 43 10.55 Limestone

0010	LIMESTONE , cut to size									
0020	Veneer facing panels									
0500	Texture finish, light stick, 4-1/2" thick, 5' x 12'	D-4	300	.107	S.F.	48	4.27	.42	52.69	60.15
0750	5" thick, 5' x 14' panels	D-10	275	.116	▼	52.50	5.05	1.63	59.18	67.15

4 43 Stone Masonry

4 43 10 – Masonry with Natural and Processed Stone

43 10.55 Limestone			Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
								Labor	Equipment		
00	Sugarcube finish, 2" Thick, 3' x 5' panels	D-10	275	.116	S.F.		35	5.05	1.63	41.68	48
50	3" Thick, 4' x 9' panels		275	.116			38	5.05	1.63	44.68	51.50
00	4" Thick, 5' x 11' panels		275	.116			41	5.05	1.63	47.68	54.50
00	Sugarcube, textured finish, 4-1/2" thick, 5' x 12'		275	.116			45	5.05	1.63	51.68	59
50	5" thick, 5' x 14' panels		275	.116	▼		53.50	5.05	1.63	60.18	68
00	Coping, sugarcube finish, top & 2 sides		30	1.067	C.F.		68	46.50	14.95	129.45	161
00	Sills, lintels, jambs, trim, stops, sugarcube finish, average		20	1.600			68	69.50	22.50	160	205
50	Detailed		20	1.600	▼		68	69.50	22.50	160	205
00	Steps, extra hard, 14" wide, 6" rise	▼	50	.640	L.F.		41.50	28	8.95	78.45	98
00	Quoins, plain finish, 6" x 12" x 12"	D-12	25	1.280	Ea.		38	51.50		89.50	120
50	6" x 16" x 24"	"	25	1.280	"		50.50	51.50		102	134

43 10.60 Marble

11	MARBLE, ashlar, split face, 4" + or - thick, random									
40	Lengths 1' to 4' & heights 2" to 7-1/2", average	D-8	175	.229	S.F.	17.75	9.30		27.05	33.50
00	Base, polished, 3/4" or 7/8" thick, polished, 6" high	D-10	65	.492	L.F.	11.80	21.50	6.90	40.20	53
00	Corvings or bas relief, from templates, average		80	.400	S.F.	144	17.35	5.60	166.95	190
50	Maximum		80	.400	"	335	17.35	5.60	357.95	400
00	Columns, cornices, moldings, etc.									
50	Hand or special machine cut, average	D-10	35	.914	C.F.	144	39.50	12.80	196.30	232
00	Maximum	"	35	.914	"	310	39.50	12.80	362.30	415
00	Facing, polished finish, cut to size, 3/4" to 7/8" thick									
50	Average	D-10	130	.246	S.F.	21	10.70	3.45	35.15	43
00	Maximum		130	.246		36.50	10.70	3.45	50.65	60
00	1-1/4" thick, average		125	.256		27.50	11.10	3.59	42.19	51.50
50	Maximum		125	.256		46.50	11.10	3.59	61.19	72
00	2" thick, average		120	.267		40	11.55	3.74	55.29	65.50
50	Maximum		120	.267		69	11.55	3.74	84.29	97.50
00	Window sills, 6" x 3/4" thick	D-1	85	.188	L.F.	10.45	7.50		17.95	23
00	Flooring, polished tiles, 12" x 12" x 3/8" thick									
10	Thin set, average	D-11	90	.267	S.F.	11.20	11.20		22.40	29
00	Maximum		90	.267		99.50	11.20		110.70	126
00	Mortar bed, average		65	.369		10.60	15.50		26.10	35
40	Maximum		65	.369		99.50	15.50		115	133
80	Travertine, 3/8" thick, average	D-10	130	.246		9.25	10.70	3.45	23.40	30
90	Maximum	"	130	.246		25.50	10.70	3.45	39.65	48
00	Potia tile, non-slip, 1/2" thick, flame finish	D-11	75	.320		15.25	13.40		28.65	37.50
00	Shower or toilet partitions, 7/8" thick partitions									
50	3/4" or 1-1/4" thick stiles, polished 2 sides, average	D-11	75	.320	S.F.	45.50	13.40		58.90	70.50
01	Scaffits, add to above prices				"	20%	100%			
210	Stairs, risers, 7/8" thick x 6" high	D-10	115	.278	L.F.	15.25	12.10	3.90	31.25	39.50
360	Treads, 12" wide x 1-1/4" thick	"	115	.278	"	41.50	12.10	3.90	57.50	68
500	Thresholds, 3' long, 7/8" thick, 4" to 5" wide, plain	D-12	24	1.333	Ea.	19.85	54		73.85	103
550	Beveled		24	1.333	"	22.50	54		76.50	106
700	Window stools, polished, 7/8" thick, 5" wide		85	.376	L.F.	20.50	15.20		35.70	45.50

4 43 10.75 Sandstone or Brownstone

011	SANDSTONE OR BROWNSTONE									
100	Sawed face veneer, 2-1/2" thick, to 2' x 4' panels	D-10	130	.246	S.F.	21	10.70	3.45	35.15	43
150	4" thick, to 3'-6" x 8' panels		100	.320		21	13.90	4.48	39.38	49
300	Split face, random sizes		100	.320		14	13.90	4.48	32.38	41.50
350	Cut stone trim (limestone)									
360	Ribbon stone, 4" thick, 5' pieces	D-8	120	.333	Ea.	172	13.55		185.55	210
370	Cave stone, 4" thick, 5' pieces		105	.381		173	15.50		188.50	214

04 43 Stone Masonry

04 43 10 - Masonry with Natural and Processed Stone

04 43 10.75 Sandstone or Brownstone		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0380	Cornice stone, 10" to 12" wide	D-8	90	.444	Ea.	214	18.10		232.10	263
0390	Band stone, 4" thick, 5' pieces		145	.276		110	11.25		121.25	138
0410	Window and door trim, 3" to 4" wide		160	.250		93.50	10.20		103.70	118
0420	Key stone, 18" long		60	.667		98.50	27		125.50	149

04 43 10.80 Slate

0010	SLATE									
0040	Pennsylvania - blue gray to black									
0050	Vermont - unfading green, mottled green & purple, gray & purple									
0100	Virginia - blue black									
0200	Exterior paving, natural cleft, 1" thick									
0500	24" x 24", Pennsylvania	D-12	120	.267	S.F.	13	10.75		23.75	30.5
0550	Vermont		120	.267		31	10.75		41.75	50.5
0600	Virginia		120	.267		20.50	10.75		31.25	39
1000	Interior flooring, natural cleft, 1/2" thick									
1300	24" x 24" Pennsylvania	D-12	120	.267	S.F.	7.75	10.75		18.50	25
1350	Vermont		120	.267		25	10.75		35.75	44
1400	Virginia		120	.267		14.75	10.75		25.50	32.5
2000	Facing panels, 1-1/4" thick, to 4' x 4' panels									
2100	Natural cleft finish, Pennsylvania	D-10	180	.178	S.F.	34	7.70	2.49	44.19	51.5
2110	Vermont		180	.178		27	7.70	2.49	37.19	44.5
2120	Virginia		180	.178		33	7.70	2.49	43.19	51
2150	Sand rubbed finish, surface, add					10.15			10.15	11.2
2200	Honed finish, add					7.35			7.35	8.1
2500	Ribban, natural cleft finish, 1" thick, to 9 S.F.	D-10	80	.400		13.10	17.35	5.60	36.05	46.5
2700	1-1/2" thick		78	.410		17.05	17.80	5.75	40.60	52
2850	2" thick		76	.421		20.50	18.25	5.90	44.65	56.5
3500	Stair treads, sand finish, 1" thick x 12" wide									
3600	3 L.F. to 6 L.F.	D-10	120	.267	L.F.	24	11.55	3.74	39.29	47.5
3700	Ribban, sand finish, 1" thick x 12" wide									
3750	To 6 L.F.	D-10	120	.267	L.F.	20	11.55	3.74	35.29	43.5
4000	Stalks or sills, sand finish, 1" thick, 6" wide	D-12	160	.200		11.50	8.05		19.55	25
4200	10" wide		90	.356		17.75	14.35		32.10	41
4400	2" thick, 6" wide		140	.229		18.50	9.20		27.70	34.5
4600	10" wide		90	.356		29	14.35		43.35	53.5
4800	For lengths over 3', add					25%				

04 43 10.85 Window Sill

0010	WINDOW SILL									
0020	Bluestone, thermal tap, 10" wide, 1-1/2" thick	D-1	85	.188	S.F.	16.05	7.50		23.55	29
0050	2" thick		75	.213	"	18.75	8.50		27.25	33.5
0100	Cut stone, 5" x 8" plain		48	.333	L.F.	11.90	13.30		25.20	33
0200	Face brick an edge, brick, 8" wide		80	.200		5.45	7.95		13.40	18
0400	Marble, 9" wide, 1" thick		85	.188		8.50	7.50		16	20.5
0900	Slate, colored, unfading, honed, 12" wide, 1" thick		85	.188		17.10	7.50		24.60	30
0950	2" thick		70	.229		24	9.10		33.10	40

4 51 Flue Liner Masonry

4 51 10 - Clay Flue Lining

4 51 10.10 Flue Lining		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
010	FLUE LINING, including mortar									
020	Clay, 8" x 8"	D-1	125	.128	V.L.F.	5	5.10		10.10	13.20
000	8" x 12"		103	.155		7.55	6.20		13.75	17.65
000	12" x 12"		93	.172		9.75	6.85		16.60	21
000	12" x 18"		84	.190		19	7.60		26.60	32.50
000	18" x 18"		75	.213		22.50	8.50		31	38
000	20" x 20"		66	.242		36	9.65		45.65	54.50
000	24" x 24"		56	.286		47	11.40		58.40	69
000	Round, 18" diameter		66	.242		30.50	9.65		40.15	48
000	24" diameter		47	.340		68	13.55		81.55	95

4 54 Refractory Brick Masonry

4 54 10 - Refractory Brick Work

4 54 10.10 Fire Brick

010	FIRE BRICK									
012	Low duty, 2000°F, 9" x 2-1/2" x 4-1/2"	D-1	.60	26.667	M	1,425	1,075		2,500	3,150
050	High duty, 3000°F	"	.60	26.667	"	2,100	1,075		3,175	3,925

4 54 10.20 Fire Clay

010	FIRE CLAY									
020	Gray, high duty, 100 lb. bag				Bag	59			59	65
050	100 lb. drum, premixed (400 brick per drum)				Drum	73			73	80.50

4 57 Masonry Fireplaces

4 57 10 - Brick or Stone Fireplaces

4 57 10.10 Fireplace

010	FIREPLACE									
100	Brick fireplace, not incl. foundations or chimneys									
110	30" x 29" opening, incl. chamber, plain brickwork	D-1	.40	40	Ea.	535	1,600		2,135	3,000
200	Fireplace box only (110 brick)	"	2	8	"	176	320		496	675
300	For elaborate brickwork and details, add					35%	35%			
400	For hearth, brick & stone, add	D-1	2	8	Ea.	197	320		517	695
410	For steel angle, damper, cleanouts, add		4	4		138	159		297	395
600	Plain brickwork, incl. metal circulator		.50	32		1,025	1,275		2,300	3,050
800	Face brick only, standard size, 8" x 2-2/3" x 4"		.30	53.333	M	535	2,125		2,660	3,800

4 71 Manufactured Brick Masonry

4 71 10 - Simulated or Manufactured Brick

4 71 10.10 Simulated Brick

010	SIMULATED BRICK									
020	Aluminum, baked on colors	1 Corp	200	.040	S.F.	3.53	1.76		5.29	6.60
050	Fiberglass panels		200	.040		3.87	1.76		5.63	6.95
100	Urethane pieces cemented in mastic		150	.053		6.70	2.35		9.05	10.95
150	Vinyl siding panels		200	.040		2.67	1.76		4.43	5.65
160	Cement base, brick, incl. mastic	D-1	100	.160		4.22	6.40		10.62	14.30
170	Corner		50	.320	V.L.F.	10.55	12.75		23.30	31
180	Stone face, incl. mastic		100	.160	S.F.	10.20	6.40		16.60	21
190	Corner		50	.320	V.L.F.	11.25	12.75		24	31.50

04 72 Cast Stone Masonry

04 72 10 - Cast Stone Masonry Features

04 72 10.10 Coping

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
0010 COPING , stock units									
0050 Precast concrete, 10" wide, 4" tapers to 3-1/2", 8" wall	D-1	75	.213	L.F.	18.15	8.50		26.65	33
0100 12" wide, 3-1/2" tapers to 3", 10" wall		70	.229		19.60	9.10		28.70	31
0110 14" wide, 4" tapers to 3-1/2", 12" wall		65	.246		21	9.80		30.80	38
0150 16" wide, 4" tapers to 3-1/2", 14" wall		60	.267		23	10.65		33.65	41
0250 Precast concrete corners		40	.400	Ea.	29.50	15.95		45.45	56
0300 Limestone for 12" wall, 4" thick		90	.178	L.F.	15.35	7.10		22.45	27
0350 6" thick		80	.200		23	7.95		30.95	37
0500 Marble, to 4" thick, no wash, 9" wide		90	.178		23	7.10		30.10	36
0550 12" wide		80	.200		35	7.95		42.95	50
0700 Terra cotta, 9" wide		90	.178		5.60	7.10		12.70	16
0750 12" wide		80	.200		9.20	7.95		17.15	22
0800 Aluminum, for 12" wall		80	.200		12.50	7.95		20.45	26

04 72 20 - Cultured Stone Veneer

04 72 20.10 Cultured Stone Veneer Components

0010 CULTURED STONE VENEER COMPONENTS									
0110 On wood frame and sheathing substrate, random sized cobbles, corner stones	D-8	70	.571	V.L.F.	12.20	23.50		35.70	48
0120 Field stones		140	.286	S.F.	8.85	11.65		20.50	27
0130 Random sized flats, corner stones		70	.571	V.L.F.	11.95	23.50		35.45	48
0140 Field stones		140	.286	S.F.	10.10	11.65		21.75	28
0150 Horizontal lined ledgerstones, corner stones		75	.533	V.L.F.	12.20	21.50		33.70	46
0160 Field stones		150	.267	S.F.	8.85	10.85		19.70	26
0170 Random shaped flats, corner stones		65	.615	V.L.F.	12.20	25		37.20	51
0180 Field stones		150	.267	S.F.	8.85	10.85		19.70	26
0190 Random shaped/textured face, corner stones		65	.615	V.L.F.	12.20	25		37.20	51
0200 Field stones		130	.308	S.F.	8.85	12.50		21.35	28
0210 Random shaped river rock, corner stones		65	.615	V.L.F.	12.20	25		37.20	51
0220 Field stones		130	.308	S.F.	8.85	12.50		21.35	28
0240 On concrete or CMU substrate, random sized cobbles, corner stones		70	.571	V.L.F.	11.50	23.50		35	47
0250 Field stones		140	.286	S.F.	8.50	11.65		20.15	27
0260 Random sized flats, corner stones		70	.571	V.L.F.	11.30	23.50		34.80	47
0270 Field stones		140	.286	S.F.	9.75	11.65		21.40	28
0280 Horizontal lined ledgerstones, corner stones		75	.533	V.L.F.	11.50	21.50		33	45
0290 Field stones		150	.267	S.F.	8.50	10.85		19.35	26
0300 Random shaped flats, corner stones		70	.571	V.L.F.	11.50	23.50		35	47
0310 Field stones		140	.286	S.F.	8.50	11.65		20.15	27
0320 Random shaped/textured face, corner stones		65	.615	V.L.F.	11.50	25		36.50	50
0330 Field stones		130	.308	S.F.	8.50	12.50		21	28
0340 Random shaped river rock, corner stones		65	.615	V.L.F.	11.50	25		36.50	50
0350 Field stones		130	.308	S.F.	8.50	12.50		21	28
0360 Cultured stone veneer, #15 felt weather resistant barrier	1 Clab	3700	.002	Sq.	5.65	.08		5.73	6
0370 Expanded metal lath, diamond, 2.5 lb./S.Y., galvanized	1 Lath	85	.094	S.Y.	3.02	3.69		6.71	8
0390 Water table or window sill, 18" long	1 Bric	80	.100	Ea.	10.60	4.41		15.01	18

4 73 Manufactured Stone Masonry

73 20 – Simulated or Manufactured Stone

73 20.10 Simulated Stone				2012 Bare Costs				Total			
Crew	Daily Output	Labor-Hours	Unit	Material	Labor	Equipment	Total	Incl O&P			
SIMULATED STONE											
Insulated fiberglass panels, 5/8" ply backer				L-4	200	.120	S.F.	11.40	4.96	16.36	20

Division Notes

[illegible]

Estimating Tips

05 00 Common Work Results for Metals

Nuts, bolts, washers, connection angles, and plates can add a significant amount to both the tonnage of a structural steel job and the estimated cost. As a rule of thumb, add 10% to the total weight to account for these accessories.

Type 2 steel construction, commonly referred to as "simple construction," consists generally of field-bolted connections with lateral bracing supplied by other elements of the building, such as masonry walls or x-bracing. The estimator should be aware, however, that shop connections may be accomplished by welding or bolting. The method may be particular to the fabrication shop and may have an impact on the estimated cost.

05 12 23 Structural Steel

Steel items can be obtained from two sources: a fabrication shop or a metals service center. Fabrication shops can fabricate items under more controlled conditions than can crews in the field. They are also more efficient and can produce items more economically. Metal service centers serve as a source of long mill shapes to both fabrication shops and contractors.

Most line items in this structural steel subdivision, and most items in 05 50 00 Metal Fabrications, are indicated as being shop fabricated. The bare material cost for these shop fabricated items is the "Invoice Cost" from the shop and includes the mill base price of steel plus mill extras, transportation to the shop, shop drawings and detailing where warranted, shop fabrication and handling, sandblasting and a shop coat of primer paint, all necessary structural bolts, and delivery to the job site. The bare labor cost and

bare equipment cost for these shop fabricated items is for field installation or erection.

- Line items in Subdivision 05 12 23.40 Lightweight Framing, and other items scattered in Division 5, are indicated as being field fabricated. The bare material cost for these field fabricated items is the "Invoice Cost" from the metals service center and includes the mill base price of steel plus mill extras, transportation to the metals service center, material handling, and delivery of long lengths of mill shapes to the job site. Material costs for structural bolts and welding rods should be added to the estimate. The bare labor cost and bare equipment cost for these items is for both field fabrication and field installation or erection, and include time for cutting, welding and drilling in the fabricated metal items. Drilling into concrete and fasteners to fasten field fabricated items to other work are not included and should be added to the estimate.

05 20 00 Steel Joist Framing

- In any given project the total weight of open web steel joists is determined by the loads to be supported and the design. However, economies can be realized in minimizing the amount of labor used to place the joists. This is done by maximizing the joist spacing, and therefore minimizing the number of joists required to be installed on the job. Certain spacings and locations may be required by the design, but in other cases maximizing the spacing and keeping it as uniform as possible will keep the costs down.

05 30 00 Steel Decking

- The takeoff and estimating of metal deck involves more than simply the area of the floor or roof and the type of deck specified or shown on the drawings. Many different sizes and types of

openings may exist. Small openings for individual pipes or conduits may be drilled after the floor/roof is installed, but larger openings may require special deck lengths as well as reinforcing or structural support. The estimator should determine who will be supplying this reinforcing. Additionally, some deck terminations are part of the deck package, such as screed angles and pour stops, and others will be part of the steel contract, such as angles attached to structural members and cast-in-place angles and plates. The estimator must ensure that all pieces are accounted for in the complete estimate.

05 50 00 Metal Fabrications

- The most economical steel stairs are those that use common materials, standard details, and most importantly, a uniform and relatively simple method of field assembly. Commonly available A36 channels and plates are very good choices for the main stringers of the stairs, as are angles and tees for the carrier members. Risers and treads are usually made by specialty shops, and it is most economical to use a typical detail in as many places as possible. The stairs should be pre-assembled and shipped directly to the site. The field connections should be simple and straightforward to be accomplished efficiently, and with minimum equipment and labor.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information. *Note:* Not all subdivisions listed here necessarily appear in this publication.

05 01 Maintenance of Metals

05 01 10 - Maintenance of Structural Metal Framing

05 01 10.51 Cleaning of Structural Metal Framing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl
CLEANING OF STRUCTURAL METAL FRAMING							Labor	Equipment		
0010	Steel surface treatments, PDCA guidelines									
6125	Wire brush, hand (SSPC-SP2)	1 Psst	400	.020	S.F.	.02	.79		.81	
6170	Power tool (SSPC-SP3)	"	700	.011		.06	.45		.51	
6215	Pressure washing, up to 5000 psi, 5000-15,000 S.F./day	1 Pord	10000	.001			.03		.03	
6220	Steam cleaning, 600 psi @ 300 F, 1250 - 2500 S.F./day		2000	.004			.15		.15	
6225	Water blasting, up to 25,000 psi, 1750 - 3500 S.F./day	▼	2500	.003			.12		.12	
6230	Brush-off blast (SSPC-SP7)	E-11	1750	.018		.25	.72	.12	1.09	
6235	Com'l blast (SSPC-SP6), loose scale, fine powder rust, 2.0#/S.F. sand		1200	.027		.50	1.06	.18	1.74	
6240	Tight mill scale, little/no rust, 3.0#/S.F. sand		1000	.032		.74	1.27	.21	2.22	
6245	Exist coat blistered/pitted, 4.0#/S.F. sand		875	.037		.99	1.45	.24	2.68	
6250	Exist coat badly pitted/nodules, 6.7#/S.F. sand		825	.039		1.66	1.54	.26	3.46	
6255	Near white blast (SSPC-SP10), loose scale, fine rust, 5.6#/S.F. sand		450	.071		1.39	2.82	.47	4.68	
6260	Tight mill scale, little/no rust, 6.9#/S.F. sand		325	.098		1.71	3.90	.65	6.26	
6265	Exist coat blistered/pitted, 9.0#/S.F. sand		225	.142		2.23	5.65	.94	8.82	
6270	Exist coat badly pitted/nodules, 11.3#/S.F. sand	▼	150	.213	▼	2.80	8.45	1.41	12.66	

05 05 Common Work Results for Metals

05 05 05 - Selective Metals Demolition

05 05 05.10 Selective Demolition, Metals

SELECTIVE DEMOLITION, METALS		R024119-10								
0015	Excludes shores, bracing, cutting, loading, hauling, dumping									
0020	Remove nuts only up to 3/4" diameter	1 Sswk	480	.017	Ea.		.82		.82	
0030	7/8" to 1-1/4" diameter		240	.033			1.64		1.64	
0040	1-3/8" to 2" diameter		160	.050			2.47		2.47	
0060	Unbolt and remove structural bolts up to 3/4" diameter		240	.033			1.64		1.64	
0070	7/8" to 2" diameter		160	.050			2.47		2.47	
0140	Light weight framing members, remove whole or cut up, up to 20 lb.	▼	240	.033			1.64		1.64	
0150	21 - 40 lb.	2 Sswk	210	.076			3.76		3.76	
0160	41 - 80 lb.	3 Sswk	180	.133			6.60		6.60	
0170	81 - 120 lb.	4 Sswk	150	.213			10.55		10.55	
0230	Structural members, remove whole or cut up, up to 500 lb.	E-19	48	.500			24	19.80	43.80	
0240	1/4 - 2 tons	E-18	36	1.111			54.50	26.50	81	124
0250	2 - 5 tons	E-24	30	1.067			52	23	75	115
0260	5 - 10 tons	E-20	24	2.667			129	48.50	177.50	276
0270	10 - 15 tons	E-2	18	3.111			150	83	233	350
0340	Fabricated item, remove whole or cut up, up to 20 lb.	1 Sswk	96	.083			4.11		4.11	
0350	21 - 40 lb.	2 Sswk	84	.190			9.40		9.40	
0360	41 - 80 lb.	3 Sswk	72	.333			16.45		16.45	
0370	81 - 120 lb.	4 Sswk	60	.533			26.50		26.50	
0380	121 - 500 lb.	E-19	48	.500			24	19.80	43.80	
0390	501 - 1000 lb.	"	36	.667	▼		32.50	26.50	59	84
0500	Steel roof decking, uncovered, bare	B-2	5000	.008	S.F.		.28		.28	

05 05 13 - Shop-Applied Coatings for Metal

05 05 13.50 Paints and Protective Coatings

PAINTS AND PROTECTIVE COATINGS										
5900	Galvanizing structural steel in shop, under 1 ton				Ton	540			540	595
5950	1 ton to 20 tons				▼	495			495	545
6000	Over 20 tons				▼	450			450	495

5 05 Common Work Results for Metals

5 05 21 – Fastening Methods for Metal

5 05 21.10 Cutting Steel				Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
									Labor	Equipment		
CUTTING STEEL												
Hand burning, incl. preparation, torch cutting & grinding, no staging												
Steel to 1/2" thick				E-25	320	.025	L.F.		1.28	.30	1.58	2.63
3/4" thick					260	.031			1.58	.37	1.95	3.23
1" thick					200	.040			2.05	.49	2.54	4.20

5 05 21.15 Drilling Steel

DRILLING STEEL												
Drilling & layout for steel, up to 1/4" deep, no anchor												
Holes, 1/4" diameter				1 Sswk	112	.071	Eq.	.07	3.53		3.60	6.40
For each additional 1/4" depth, add					336	.024		.07	1.18		1.25	2.18
3/8" diameter					104	.077		.08	3.80		3.88	6.90
For each additional 1/4" depth, add					312	.026		.08	1.27		1.35	2.35
1/2" diameter					96	.083		.09	4.11		4.20	7.45
For each additional 1/4" depth, add					288	.028		.09	1.37		1.46	2.54
5/8" diameter					88	.091		.12	4.49		4.61	8.15
For each additional 1/4" depth, add					264	.030		.12	1.50		1.62	2.80
3/4" diameter					80	.100		.15	4.94		5.09	9
For each additional 1/4" depth, add					240	.033		.15	1.64		1.79	3.11
7/8" diameter					72	.111		.20	5.50		5.70	10
For each additional 1/4" depth, add					216	.037		.20	1.83		2.03	3.49
1" diameter					64	.125		.21	6.15		6.36	11.30
For each additional 1/4" depth, add					192	.042		.21	2.06		2.27	3.91
For drilling up, add									40%			

5 05 21.90 Welding Steel

WELDING STEEL, Structural				R050521-20								
Field welding, 1/8" E6011, cast per welder, no oper. engineer				E-14	8	1	Hr.	4.22	51.50	15.20	70.92	113
With 1/2 operating engineer				E-13	8	1.500		4.22	73.50	15.20	92.92	147
With 1 operating engineer				E-12	8	2		4.22	96	15.20	115.42	180
With no operating engineer, 2# weld rod per ton				E-14	8	1	Ton	4.22	51.50	15.20	70.92	113
8# E6011 per ton				"	2	4		16.85	205	61	282.85	450
With one operating engineer per welder, 2# E6011 per ton				E-12	8	2		4.22	96	15.20	115.42	180
8# E6011 per ton				"	2	8		16.85	385	61	462.85	720
Continuous fillet, stick welding, incl. equipment												
Single pass, 1/8" thick, 0.1#/L.F.				E-14	150	.053	L.F.	.21	2.74	.81	3.76	6
3/16" thick, 0.2#/L.F.					75	.107		.42	5.50	1.62	7.54	12.05
1/4" thick, 0.3#/L.F.					50	.160		.63	8.20	2.43	11.26	18.10
5/16" thick, 0.4#/L.F.					38	.211		.84	10.80	3.20	14.84	24
3 passes, 3/8" thick, 0.5#/L.F.					30	.267		1.05	13.70	4.05	18.80	30
4 passes, 1/2" thick, 0.7#/L.F.					22	.364		1.48	18.65	5.55	25.68	41
5 to 6 passes, 3/4" thick, 1.3#/L.F.					12	.667		2.74	34	10.15	46.89	75
8 to 11 passes, 1" thick, 2.4#/L.F.					6	1.333		5.05	68.50	20.50	94.05	150
For all position welding, add, minimum									20%			
Maximum									300%			
For semi-automatic welding, deduct, minimum									5%			
Maximum									15%			
Cleaning and welding plates, bars, or rods to existing beams, columns, or trusses				E-14	12	.667	L.F.	1.05	34	10.15	45.20	73.50

5 05 23 – Metal Fastenings

5 05 23.05 Anchor Bolts

ANCHOR BOLTS												
Made from recycled materials				G								

05 05 Common Work Results for Metals

05 05 23 - Metal Fastenings

05 05 23.05 Anchor Bolts

			Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
								Labor	Equipment		
0025	Single bolts installed in fresh concrete, no templates										
0030	Hooked w/nut and washer, 1/2" diameter, 8" long	G	1 Carp	132	.061	Ea.	1.39	2.67		4.06	5.8
0040	12" long	G		131	.061		1.54	2.69		4.23	5.8
0050	5/8" diameter, 8" long	G		129	.062		3	2.74		5.74	7.5
0060	12" long	G		127	.063		3.70	2.78		6.48	8.2
0070	3/4" diameter, 8" long	G		127	.063		3.70	2.78		6.48	8.2
0080	12" long	G		125	.064		4.62	2.82		7.44	9.4
0090	2-bolt pattern, including job-built 2-hole template, per set										
0100	J-type, incl. hex nut & washer, 1/2" diameter x 6" long	G	1 Carp	21	.381	Set	4.55	16.80		21.35	31
0110	12" long	G		21	.381		5.15	16.80		21.95	31.9
0120	18" long	G		21	.381		6.10	16.80		22.90	32.9
0130	3/4" diameter x 8" long	G		20	.400		9.50	17.65		27.15	37.9
0140	12" long	G		20	.400		11.35	17.65		29	39.5
0150	18" long	G		20	.400		14.10	17.65		31.75	42.5
0160	1" diameter x 12" long	G		19	.421		19.90	18.55		38.45	50.5
0170	18" long	G		19	.421		23.50	18.55		42.05	54.5
0180	24" long	G		19	.421		28.50	18.55		47.05	59.5
0190	36" long	G		18	.444		38	19.60		57.60	77
0200	1-1/2" diameter x 18" long	G		17	.471		60	21		81	98
0210	24" long	G		16	.500		71.50	22		93.50	113
0300	L-type, incl. hex nut & washer, 3/4" diameter x 12" long	G		20	.400		10.75	17.65		28.40	39
0310	18" long	G		20	.400		13.15	17.65		30.80	41.5
0320	24" long	G		20	.400		15.60	17.65		33.25	44
0330	30" long	G		20	.400		19.25	17.65		36.90	48
0340	36" long	G		20	.400		21.50	17.65		39.15	51
0350	1" diameter x 12" long	G		19	.421		16.95	18.55		35.50	47
0360	18" long	G		19	.421		20.50	18.55		39.05	51
0370	24" long	G		19	.421		25	18.55		43.55	56
0380	30" long	G		19	.421		29	18.55		47.55	60.5
0390	36" long	G		18	.444		33	19.60		52.60	66.5
0400	42" long	G		18	.444		39.50	19.60		59.10	73.5
0410	48" long	G		18	.444		44	19.60		63.60	78.5
0420	1-1/4" diameter x 18" long	G		18	.444		30	19.60		49.60	63
0430	24" long	G		18	.444		35	19.60		54.60	69
0440	30" long	G		17	.471		40.50	21		61.50	76.5
0450	36" long	G		17	.471		45.50	21		66.50	82.5
0460	42" long	G	2 Carp	32	.500		51.50	22		73.50	90.5
0470	48" long	G		32	.500		58.50	22		80.50	98
0480	54" long	G		31	.516		68.50	23		91.50	110
0490	60" long	G		31	.516		75	23		98	118
0500	1-1/2" diameter x 18" long	G		33	.485		43.50	21.50		65	81
0510	24" long	G		32	.500		50.50	22		72.50	89.5
0520	30" long	G		31	.516		57	23		80	97.5
0530	36" long	G		30	.533		65	23.50		88.50	108
0540	42" long	G		30	.533		74	23.50		97.50	117
0550	48" long	G		29	.552		82.50	24.50		107	129
0560	54" long	G		28	.571		100	25		125	149
0570	60" long	G		28	.571		110	25		135	160
0580	1-3/4" diameter x 18" long	G		31	.516		61.50	23		84.50	103
0590	24" long	G		30	.533		72	23.50		95.50	115
0600	30" long	G		29	.552		83.50	24.50		108	129
0610	36" long	G		28	.571		95	25		120	143
0620	42" long	G		27	.593		106	26		132	157

5 05 Common Work Results for Metals

05 23 – Metal Fastenings

05 23.05 Anchor Bolts		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Incl O&P
	48" long	G	2 Corp	26	.615	Set	116	27	143	170
	54" long	G		26	.615		144	27	171	200
	60" long	G		25	.640		155	28	183	215
	2" diameter x 24" long	G		27	.593		96.50	26	122.50	146
	30" long	G		27	.593		108	26	134	159
	36" long	G		26	.615		119	27	146	173
	42" long	G		25	.640		132	28	160	190
	48" long	G		24	.667		152	29.50	181.50	212
	54" long	G		23	.696		180	30.50	210.50	245
	60" long	G		23	.696		194	30.50	224.50	260
	66" long	G		22	.727		207	32	239	278
	72" long	G		21	.762		227	33.50	260.50	300
4-bolt pattern, including job-built 4-hole template, per set										
	J-type, incl. hex nut & washer, 1/2" diameter x 6" long	G	1 Corp	19	.421	Set	7	18.55	25.55	36
	12" long	G		19	.421		8.25	18.55	26.80	37.50
	18" long	G		18	.444		10.10	19.60	29.70	41
	3/4" diameter x 8" long	G		17	.471		16.85	21	37.85	50.50
	12" long	G		17	.471		20.50	21	41.50	54.50
	18" long	G		17	.471		26	21	47	60.50
	1" diameter x 12" long	G		16	.500		38	22	60	75.50
	18" long	G		15	.533		45	23.50	68.50	85.50
	24" long	G		15	.533		54.50	23.50	78	96
	36" long	G		15	.533		74	23.50	97.50	118
	1-1/2" diameter x 18" long	G		13	.615		118	27	145	172
	24" long	G		12	.667		140	29.50	169.50	200
	L-type, incl. hex nut & washer, 3/4" diameter x 12" long	G		17	.471		19.35	21	40.35	53.50
	18" long	G		17	.471		24	21	45	58.50
	24" long	G		17	.471		29	21	50	64
	30" long	G		16	.500		36.50	22	58.50	74
	36" long	G		16	.500		41	22	63	79.50
	1" diameter x 12" long	G		16	.500		32	22	54	69
	18" long	G		15	.533		39	23.50	62.50	79
	24" long	G		15	.533		48	23.50	71.50	88.50
	30" long	G		15	.533		56	23.50	79.50	97.50
	36" long	G		15	.533		64	23.50	87.50	107
	42" long	G		14	.571		77	25	102	124
	48" long	G		14	.571		86.50	25	111.50	134
	1-1/4" diameter x 18" long	G		14	.571		58	25	83	103
	24" long	G		14	.571		68.50	25	93.50	114
	30" long	G		13	.615		79	27	106	129
	36" long	G		13	.615		89.50	27	116.50	140
	42" long	G	2 Corp	25	.640		101	28	129	155
	48" long	G		24	.667		115	29.50	144.50	171
	54" long	G		23	.696		135	30.50	165.50	195
	60" long	G		23	.696		148	30.50	178.50	209
	1-1/2" diameter x 18" long	G		25	.640		85	28	113	137
	24" long	G		24	.667		99	29.50	128.50	154
	30" long	G		23	.696		112	30.50	142.50	170
	36" long	G		22	.727		128	32	160	191
	42" long	G		22	.727		146	32	178	210
	48" long	G		21	.762		163	33.50	196.50	231
	54" long	G		20	.800		198	35.50	233.50	273
	60" long	G		20	.800		217	35.50	252.50	294

05 05 Common Work Results for Metals

05 05 23 – Metal Fastenings

05 05 23.05 Anchor Bolts

			Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
								Labor	Equipment		
1580	1-3/4" diameter x 18" long	G	2 Carp	22	.727	Set	121	32		153	183
1590	24" long	G		21	.762		142	33.50		175.50	208
1600	30" long	G		21	.762		165	33.50		198.50	233
1610	36" long	G		20	.800		187	35.50		222.50	261
1620	42" long	G		19	.842		210	37		247	288
1630	48" long	G		18	.889		231	39		270	315
1640	54" long	G		18	.889		286	39		325	373
1650	60" long	G		17	.941		310	41.50		351.50	405
1660	2" diameter x 24" long	G		19	.842		191	37		228	267
1670	30" long	G		18	.889		215	39		254	297
1680	36" long	G		18	.889		236	39		275	320
1690	42" long	G		17	.941		263	41.50		304.50	355
1700	48" long	G		16	1		300	44		344	400
1710	54" long	G		15	1.067		360	47		407	470
1720	60" long	G		15	1.067		385	47		432	500
1730	66" long	G		14	1.143		410	50.50		460.50	535
1740	72" long	G		14	1.143		450	50.50		500.50	575
1990	For galvanized, odd					Eo.	75%				

05 05 23.10 Bolts and Hex Nuts

0010	BOLTS & HEX NUTS, Steel, A307										
0100	1/4" diameter, 1/2" long	G	1 Sswk	140	.057	Eo.	.07	2.82		2.89	5.8
0200	1" long	G		140	.057		.08	2.82		2.90	5.8
0300	2" long	G		130	.062		.11	3.04		3.15	5.8
0400	3" long	G		130	.062		.16	3.04		3.20	5.8
0500	4" long	G		120	.067		.18	3.29		3.47	6.7
0600	3/8" diameter, 1" long	G		130	.062		.15	3.04		3.19	5.8
0700	2" long	G		130	.062		.19	3.04		3.23	5.8
0800	3" long	G		120	.067		.25	3.29		3.54	6.7
0900	4" long	G		120	.067		.32	3.29		3.61	6.7
1000	5" long	G		115	.070		.39	3.43		3.82	6.8
1100	1/2" diameter, 1-1/2" long	G		120	.067		.40	3.29		3.69	6.7
1200	2" long	G		120	.067		.46	3.29		3.75	6.8
1300	4" long	G		115	.070		.74	3.43		4.17	6.9
1400	6" long	G		110	.073		1.03	3.59		4.62	7.5
1500	8" long	G		105	.076		1.35	3.76		5.11	8.1
1600	5/8" diameter, 1-1/2" long	G		120	.067		.96	3.29		4.25	6.8
1700	2" long	G		120	.067		1.07	3.29		4.36	7.0
1800	4" long	G		115	.070		1.55	3.43		4.98	7.8
1900	6" long	G		110	.073		2	3.59		5.59	8.8
2000	8" long	G		105	.076		2.99	3.76		6.75	10
2100	10" long	G		100	.080		3.76	3.95		7.71	11.3
2200	3/4" diameter, 2" long	G		120	.067		1.13	3.29		4.42	7.1
2300	4" long	G		110	.073		1.61	3.59		5.20	8.1
2400	6" long	G		105	.076		2.07	3.76		5.83	9
2500	8" long	G		95	.084		3.12	4.16		7.28	10.8
2600	10" long	G		85	.094		4.09	4.64		8.73	12.1
2700	12" long	G		80	.100		4.79	4.94		9.73	14.7
2800	1" diameter, 3" long	G		105	.076		2.81	3.76		6.57	9.1
2900	6" long	G		90	.089		4.06	4.39		8.45	12
3000	12" long	G		75	.107		7.20	5.25		12.45	17.2
3100	For galvanized, odd						75%				
3200	For stainless, odd						350%				

5 05 Common Work Results for Metals

5 05 23 – Metal Fastenings

05 23.15 Chemical Anchors				Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
CHEMICAL ANCHORS									Labor	Equipment		
Includes layout & drilling												
Chemical anchor, w/rod & epoxy cartridge, 3/4" diam. x 9-1/2" long				B-89A	27	.593	Eo.	8.55	24	4.08	36.63	51
1" diameter x 11-3/4" long					24	.667		15.50	27	4.59	47.09	63.50
1-1/4" diameter x 14" long					21	.762		32	30.50	5.25	67.75	88.50
1-3/4" diameter x 15" long					20	.800		60	32	5.50	97.50	122
18" long					17	.941		72	38	6.50	116.50	145
2" diameter x 18" long					16	1		87	40.50	6.90	134.40	166
24" long					15	1.067		113	43	7.35	163.35	198

05 23.20 Expansion Anchors

EXPANSION ANCHORS												
Anchors for concrete, brick or stone, no layout and drilling												
Expansion shields, zinc, 1/4" diameter, 1-5/16" long, single				G	1 Corp	90	.089	Eo.	.42	3.92	4.34	6.50
1-3/8" long, double				G		85	.094		.54	4.15	4.69	7
3/8" diameter, 1-1/2" long, single				G		85	.094		.73	4.15	4.88	7.20
2" long, double				G		80	.100		1.17	4.41	5.58	8.10
1/2" diameter, 2-1/16" long, single				G		80	.100		1.40	4.41	5.81	8.35
2-1/2" long, double				G		75	.107		1.82	4.70	6.52	9.25
5/8" diameter, 2-5/8" long, single				G		75	.107		2.54	4.70	7.24	10.05
2-3/4" long, double				G		70	.114		2.59	5.05	7.64	10.60
3/4" diameter, 2-3/4" long, single				G		70	.114		2.79	5.05	7.84	10.80
3-15/16" long, double				G		65	.123		5	5.45	10.45	13.85
Hollow wall anchors for gypsum wall board, plaster or tile												
1/8" diameter, short				G	1 Corp	160	.050	Eo.	.20	2.21	2.41	3.61
Long				G		150	.053		.23	2.35	2.58	3.87
3/16" diameter, short				G		150	.053		.36	2.35	2.71	4.02
Long				G		140	.057		.49	2.52	3.01	4.42
1/4" diameter, short				G		140	.057		.53	2.52	3.05	4.46
Long				G		130	.062		.53	2.71	3.24	4.76
Toggle bolts, bright steel, 1/8" diameter, 2" long				G		85	.094		.18	4.15	4.33	6.60
4" long				G		80	.100		.22	4.41	4.63	7.05
3/16" diameter, 3" long				G		80	.100		.22	4.41	4.63	7.05
6" long				G		75	.107		.32	4.70	5.02	7.60
1/4" diameter, 3" long				G		75	.107		.28	4.70	4.98	7.55
6" long				G		70	.114		.45	5.05	5.50	8.25
3/8" diameter, 3" long				G		70	.114		.67	5.05	5.72	8.50
6" long				G		60	.133		1.18	5.90	7.08	10.35
1/2" diameter, 4" long				G		60	.133		1.69	5.90	7.59	10.90
6" long				G		50	.160		2.08	7.05	9.13	13.15
Nailing anchors												
Nylon nailing anchor, 1/4" diameter, 1" long					1 Corp	3.20	2.500	C	13.45	110	123.45	185
1-1/2" long						2.80	2.857		16.60	126	142.60	212
2" long						2.40	3.333		19.50	147	166.50	248
Metal nailing anchor, 1/4" diameter, 1" long				G		3.20	2.500		15.75	110	125.75	187
1-1/2" long				G		2.80	2.857		22	126	148	218
2" long				G		2.40	3.333		26.50	147	173.50	255
Screw anchors for concrete, masonry, stone & tile, no layout or drilling included												
Log screw shields, 1/4" diameter, short				G	1 Corp	90	.089	Eo.	.32	3.92	4.24	6.40
Long				G		85	.094		.39	4.15	4.54	6.85
3/8" diameter, short				G		85	.094		.62	4.15	4.77	7.10
Long				G		80	.100		.76	4.41	5.17	7.65

05 05 Common Work Results for Metals

05 05 23 - Metal Fastenings

05 05 23.20 Expansion Anchors

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&M
6100	1/2" diameter, short	G	1 Corp	80	.100	Eo.	1.02	4.41	5.43	7
6200	Long	G		75	.107		1.24	4.70	5.94	8
6300	5/8" diameter, short	G		70	.114		1.63	5.05	6.68	9
6400	Long	G		65	.123		2.13	5.45	7.58	10
6600	Lead, #6 & #8, 3/4" long	G		260	.031		.16	1.36	1.52	2
6700	#10 - #14, 1-1/2" long	G		200	.040		.27	1.76	2.03	3
6800	#16 & #18, 1-1/2" long	G		160	.050		.32	2.21	2.53	3
6900	Plastic, #6 & #8, 3/4" long			260	.031		.04	1.36	1.40	2
7000	#8 & #10, 7/8" long			240	.033		.04	1.47	1.51	2
7100	#10 & #12, 1" long			220	.036		.05	1.60	1.65	2
7200	#14 & #16, 1-1/2" long			160	.050		.07	2.21	2.28	3
8000	Wedge anchors, not including layout or drilling									
8050	Carbon steel, 1/4" diameter, 1-3/4" long	G	1 Corp	150	.053	Eo.	.36	2.35	2.71	4
8100	3-1/4" long	G		140	.057		.48	2.52	3	4
8150	3/8" diameter, 2-1/4" long	G		145	.055		.44	2.43	2.87	4
8200	5" long	G		140	.057		.77	2.52	3.29	4
8250	1/2" diameter, 2-3/4" long	G		140	.057		.89	2.52	3.41	4
8300	7" long	G		125	.064		1.53	2.82	4.35	6
8350	5/8" diameter, 3-1/2" long	G		130	.062		1.60	2.71	4.31	5
8400	8-1/2" long	G		115	.070		3.40	3.07	6.47	8
8450	3/4" diameter, 4-1/4" long	G		115	.070		2.38	3.07	5.45	7
8500	10" long	G		95	.084		5.40	3.71	9.11	11
8550	1" diameter, 6" long	G		100	.080		8.60	3.53	12.13	14
8575	9" long	G		85	.094		11.20	4.15	15.35	18
8600	12" long	G		75	.107		12.05	4.70	16.75	20
8650	1-1/4" diameter, 9" long	G		70	.114		24	5.05	29.05	34
8700	12" long	G		60	.133		30.50	5.90	36.40	42
8750	For type 303 stainless steel, add						350%			
8800	For type 316 stainless steel, add						450%			
8950	Self-drilling concrete screw, hex washer head, 3/16" diam. x 1-3/4" long	G	1 Corp	300	.027	Eo.	.19	1.18	1.37	2
8960	2-1/4" long	G		250	.032		.20	1.41	1.61	2
8970	Phillips flat head, 3/16" diam. x 1-3/4" long	G		300	.027		.18	1.18	1.36	2
8980	2-1/4" long	G		250	.032		.20	1.41	1.61	2

05 05 23.25 High Strength Bolts

0010	HIGH STRENGTH BOLTS									
0020	A325 Type 1, structural steel, bolt-nut-washer set									
0100	1/2" diameter x 1-1/2" long	G	1 Sswk	130	.062	Eo.	.93	3.04	3.97	6
0120	2" long	G		125	.064		1.01	3.16	4.17	6
0150	3" long	G		120	.067		1.41	3.29	4.70	7
0170	5/8" diameter x 1-1/2" long	G		125	.064		1.65	3.16	4.81	7
0180	2" long	G		120	.067		1.77	3.29	5.06	7
0190	3" long	G		115	.070		2.18	3.43	5.61	8
0200	3/4" diameter x 2" long	G		120	.067		2.67	3.29	5.96	8
0220	3" long	G		115	.070		3.20	3.43	6.63	9
0250	4" long	G		110	.073		3.91	3.59	7.50	10
0300	6" long	G		105	.076		5.05	3.76	8.81	12
0350	8" long	G		95	.084		10	4.16	14.16	18
0360	7/8" diameter x 2" long	G		115	.070		3.73	3.43	7.16	10
0365	3" long	G		110	.073		4.41	3.59	8	11
0370	4" long	G		105	.076		5.30	3.76	9.06	12
0380	6" long	G		100	.080		6.75	3.95	10.70	14
0390	8" long	G		90	.089		10.70	4.39	15.09	19

5 05 Common Work Results for Metals

05 23 – Metal Fastenings

05 23.25 High Strength Bolts		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
1" diameter x 2" long	G	1 Sswk	105	.076	Ea.	4.67	3.76		8.43	11.85
3" long	G		100	.080		5.30	3.95		9.25	12.85
4" long	G		95	.084		6	4.16		10.16	14.05
6" long	G		90	.089		8	4.39		12.39	16.65
8" long	G		85	.094		13.90	4.64		18.54	23.50
1-1/4" diameter x 3" long	G		85	.094		10.75	4.64		15.39	20
4" long	G		80	.100		2.64	4.94		7.58	11.75
6" long	G		75	.107		15.25	5.25		20.50	26
8" long	G		70	.114		19.50	5.65		25.15	31.50
A490, bolt-nut-washer set										
5/8" diameter x 1-1/2" long	G	1 Sswk	125	.064	Ea.	2.17	3.16		5.33	8.05
2" long	G		120	.067		2.56	3.29		5.85	8.70
3" long	G		115	.070		3.10	3.43		6.53	9.55
3/4" diameter x 2" long	G		120	.067		3.62	3.29		6.91	9.90
3" long	G		115	.070		4.28	3.43		7.71	10.85
4" long	G		110	.073		4.98	3.59		8.57	11.90
6" long	G		105	.076		7.30	3.76		11.06	14.75
8" long	G		95	.084		12.45	4.16		16.61	21
7/8" diameter x 2" long	G		115	.070		5.45	3.43		8.88	12.15
3" long	G		110	.073		6.40	3.59		9.99	13.45
4" long	G		105	.076		8	3.76		11.76	15.50
6" long	G		100	.080		11.25	3.95		15.20	19.40
8" long	G		90	.089		16.35	4.39		20.74	26
1" diameter x 2" long	G		105	.076		6.45	3.76		10.21	13.80
3" long	G		100	.080		7.85	3.95		11.80	15.65
4" long	G		95	.084		9.05	4.16		13.21	17.40
6" long	G		90	.089		12.15	4.39		16.54	21.50
8" long	G		85	.094		19.35	4.64		23.99	30
1-1/4" diameter x 3" long	G		85	.094		14.75	4.64		19.39	24.50
4" long	G		80	.100		16.90	4.94		21.84	27.50
6" long	G		75	.107		23	5.25		28.25	35
8" long	G		70	.114		30	5.65		35.65	43

05 23.30 Lag Screws

LAG SCREWS										
Steel, 1/4" diameter, 2" long	G	1 Corp	200	.040	Ea.	.07	1.76		1.83	2.79
3/8" diameter, 3" long	G		150	.053		.25	2.35		2.60	3.90
1/2" diameter, 3" long	G		130	.062		.49	2.71		3.20	4.72
5/8" diameter, 3" long	G		120	.067		1.01	2.94		3.95	5.65

05 23.35 Machine Screws

MACHINE SCREWS										
Steel, round head, #8 x 1" long	G	1 Corp	4.80	1.667	C	3.76	73.50		77.26	117
#8 x 2" long	G		2.40	3.333		5.85	147		152.85	232
#10 x 1" long	G		4	2		5.85	88		93.85	142
#10 x 2" long	G		2	4		7.95	176		183.95	280

05 23.40 Machinery Anchors

MACHINERY ANCHORS , heavy duty, incl. sleeve, floating base nut, lower stud & coupling nut, fiber plug, connecting stud, washer & nut. For flush mounted embedment in poured concrete heavy equip. pads.										
Stud & bolt, 1/2" diameter	G	E-16	40	.400	Ea.	68.50	20	3.04	91.54	115
5/8" diameter	G		35	.457		76	23	3.47	102.47	128
3/4" diameter	G		30	.533		87.50	27	4.05	118.55	149
7/8" diameter	G		25	.640		95.50	32	4.86	132.36	168

05 05 Common Work Results for Metals

05 05 23 - Metal Fastenings

05 05 23.40 Machinery Anchors

0800	1" diameter	G	E-16	20	.800	Ea.	100	40.50	6.10	146.60	189
0900	1-1/4" diameter	G	↓	15	1.067	↓	133	53.50	8.10	194.60	252

05 05 23.50 Powder Actuated Tools and Fasteners

0010	POWDER ACTUATED TOOLS & FASTENERS									
0020	Stud driver, .22 caliber, buy, minimum				Ea.	95			95	105
0100	Maximum				"	370			370	405
0300	Powder charges for above, low velocity				C	5.10			5.10	5.4
0400	Standard velocity					7			7	7.7
0600	Drive pins & studs, 1/4" & 3/8" diam., to 3" long, minimum	G	1 Carp	4.80	1.667	↓	4.75	73.50	78.25	118
0700	Maximum	G	"	4	2	↓	11.40	88	99.40	149

05 05 23.55 Rivets

0010	RIVETS									
0100	Aluminum rivet & mandrel, 1/2" grip length x 1/8" diameter	G	1 Carp	4.80	1.667	C	6.65	73.50	80.15	120
0200	3/16" diameter	G		4	2		11.75	88	99.75	149
0300	Aluminum rivet, steel mandrel, 1/8" diameter	G		4.80	1.667		9.10	73.50	82.60	123
0400	3/16" diameter	G		4	2		14.60	88	102.60	152
0500	Copper rivet, steel mandrel, 1/8" diameter	G		4.80	1.667		8.35	73.50	81.85	122
0800	Stainless rivet & mandrel, 1/8" diameter	G		4.80	1.667		25	73.50	98.50	141
0900	3/16" diameter	G		4	2		43	88	131	184
1000	Stainless rivet, steel mandrel, 1/8" diameter	G		4.80	1.667		22.50	73.50	96	138
1100	3/16" diameter	G		4	2		31.50	88	119.50	171
1200	Steel rivet and mandrel, 1/8" diameter	G		4.80	1.667		8.05	73.50	81.55	122
1300	3/16" diameter	G	↓	4	2	↓	11.20	88	99.20	148
1400	Hand riveting tool, minimum					Ea.	65.50		65.50	72
1500	Maximum						271		271	298
1600	Power riveting tool, minimum						475		475	525
1700	Maximum					↓	2,650		2,650	2,925

05 05 23.70 Structural Blind Bolts

0010	STRUCTURAL BLIND BOLTS									
0100	1/4" diameter x 1/4" grip	G	1 Sswk	240	.033	Ea.	1.24	1.64	2.88	4.1
0150	1/2" grip	G		216	.037		1.33	1.83	3.16	4.1
0200	3/8" diameter x 1/2" grip	G		232	.034		1.75	1.70	3.45	4.1
0250	3/4" grip	G		208	.038		1.83	1.90	3.73	5.4
0300	1/2" diameter x 1/2" grip	G		224	.036		5.15	1.76	6.91	8.1
0350	3/4" grip	G		200	.040		5.60	1.97	7.57	9.1
0400	5/8" diameter x 3/4" grip	G		216	.037		8.25	1.83	10.08	12.1
0450	1" grip	G	↓	192	.042	↓	9.50	2.06	11.56	14.1

05 05 23.80 Vibration and Bearing Pads

0010	VIBRATION & BEARING PADS									
0300	Laminated synthetic rubber impregnated cotton duck, 1/2" thick		2 Sswk	24	.667	S.F.	66	33	99	132
0400	1" thick			20	.800		130	39.50	169.50	214
0600	Neoprene bearing pads, 1/2" thick			24	.667		25.50	33	58.50	87
0700	1" thick			20	.800		50.50	39.50	90	126
0900	Fabric reinforced neoprene, 5000 psi, 1/2" thick			24	.667		11	33	44	71
1000	1" thick			20	.800		22	39.50	61.50	94
1200	Felt surfaced vinyl pads, cork and sisal, 5/8" thick			24	.667		28	33	61	89
1300	1" thick			20	.800		50.50	39.50	90	126
1500	Teflon bonded to 10 ga. carbon steel, 1/32" layer			24	.667		49.50	33	82.50	114
1600	3/32" layer			24	.667		74	33	107	141
1800	Bonded to 10 ga. stainless steel, 1/32" layer			24	.667		87.50	33	120.50	156
1900	3/32" layer		↓	24	.667	↓	115	33	148	186
2100	Circular machine leveling pad & stud					Kip	6.20		6.20	6.1

5 05 Common Work Results for Metals

05 23 – Metal Fastenings

05 23.85 Weld Shear Connectors		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
WELD SHEAR CONNECTORS							Labor	Equipment		
3/4" diameter, 3-3/16" long	G	E-10	960	.017	Eq.	.51	.84	.40	1.75	2.50
3-3/8" long	G		950	.017		.53	.85	.41	1.79	2.56
3-7/8" long	G		945	.017		.57	.85	.41	1.83	2.60
4-3/16" long	G		935	.017		.60	.86	.41	1.87	2.65
4-7/8" long	G		930	.017		.67	.87	.42	1.96	2.75
5-3/16" long	G		920	.017		.70	.88	.42	2	2.80
5-3/8" long	G		910	.018		.70	.89	.42	2.01	2.82
6-3/16" long	G		905	.018		.77	.89	.43	2.09	2.91
7-3/16" long	G		895	.018		.96	.90	.43	2.29	3.14
8-3/16" long	G		890	.018		1.05	.91	.43	2.39	3.25
7/8" diameter, 3-11/16" long	G		920	.017		.82	.88	.42	2.12	2.94
4-3/16" long	G		910	.018		.88	.89	.42	2.19	3.02
5-3/16" long	G		905	.018		1	.89	.43	2.32	3.16
6-3/16" long	G		895	.018		1.12	.90	.43	2.45	3.31
7-3/16" long	G		890	.018		1.24	.91	.43	2.58	3.47
8-3/16" long	G		880	.018		1.36	.92	.44	2.72	3.61

05 23.87 Weld Studs

WELD STUDS										
1/4" diameter, 2-11/16" long	G	E-10	1120	.014	Eq.	.33	.72	.34	1.39	2.03
4-1/8" long	G		1080	.015		.31	.75	.36	1.42	2.06
3/8" diameter, 4-1/8" long	G		1080	.015		.36	.75	.36	1.47	2.12
6-1/8" long	G		1040	.015		.47	.77	.37	1.61	2.30
1/2" diameter, 2-1/8" long	G		1040	.015		.34	.77	.37	1.48	2.16
3-1/8" long	G		1025	.016		.41	.79	.38	1.58	2.27
4-1/8" long	G		1010	.016		.48	.80	.38	1.66	2.38
5-5/16" long	G		990	.016		.59	.81	.39	1.79	2.53
6-1/8" long	G		975	.016		.64	.83	.40	1.87	2.62
8-1/8" long	G		960	.017		.90	.84	.40	2.14	2.93
5/8" diameter, 2-11/16" long	G		1000	.016		.58	.81	.39	1.78	2.50
4-3/16" long	G		990	.016		.72	.81	.39	1.92	2.67
6-9/16" long	G		975	.016		.94	.83	.40	2.17	2.95
8-3/16" long	G		960	.017		1.26	.84	.40	2.50	3.33

05 23.90 Welding Rod

WELDING ROD										
Steel, type 6011, 1/8" diam., less than 500#					Lb.	2.11			2.11	2.32
500# to 2,000#						1.90			1.90	2.09
2,000# to 5,000#						1.79			1.79	1.96
5/32" diameter, less than 500#						2.10			2.10	2.31
500# to 2,000#						1.89			1.89	2.08
2,000# to 5,000#						1.78			1.78	1.95
3/16" diam., less than 500#						2.26			2.26	2.49
500# to 2,000#						2.04			2.04	2.24
2,000# to 5,000#						1.92			1.92	2.11
Steel, type 6010, 1/8" diam., less than 500#						2.21			2.21	2.43
500# to 2,000#						1.99			1.99	2.19
2,000# to 5,000#						1.87			1.87	2.06
Steel, type 7018 Low Hydrogen, 1/8" diam., less than 500#						2.66			2.66	2.93
500# to 2,000#						2.40			2.40	2.64
2,000# to 5,000#						2.26			2.26	2.48
Steel, type 7024 Jet Weld, 1/8" diam., less than 500#						2.50			2.50	2.75
500# to 2,000#						2.25			2.25	2.48

05 05 Common Work Results for Metals

05 05 23 - Metal Fastenings

05 05 23.90 Welding Rod		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&M
							Labor	Equipment		
0720	2,000# to 5,000#				Lb.	2.12			2.12	2
1550	Aluminum, type 4043 TIG, 1/8" diam., less than 10#					4.74			4.74	5
1560	10# to 60#					4.27			4.27	4
1570	Over 60#					4.01			4.01	4
1600	Aluminum, type 5356 TIG, 1/8" diam., less than 10#					5.45			5.45	6
1610	10# to 60#					4.90			4.90	5
1620	Over 60#					4.61			4.61	5
1900	Cast iron, type 8 Nickel, 1/8" diam., less than 500#					27.50			27.50	30
1910	500# to 1,000#					24.50			24.50	27
1920	Over 1,000#					23			23	25
2000	Stainless steel, type 316/316L, 1/8" diam., less than 500#					7.55			7.55	8
2100	500# to 1000#					6.80			6.80	7
2220	Over 1000#					6.40			6.40	7

05 12 Structural Steel Framing

05 12 23 - Structural Steel for Buildings

05 12 23.05 Canopy Framing

0010	CANOPY FRAMING									
0020	6" and 8" members, shop fabricated	G	E-4	3000	.011	Lb.	1.50	.53	.04	2.07

05 12 23.10 Ceiling Supports

0010	CEILING SUPPORTS									
1000	Entrance door/folding partition supports, shop fabricated	G	E-4	60	.533	L.F.	25	26.50	2.03	53.53
1100	Linear occelatorator door supports	G		14	2.286		114	114	8.70	236.70
1200	Lintels or shelf angles, hung, exterior hot dipped galv.	G		267	.120		17.05	5.95	.46	23.46
1250	Two coats primer paint instead of galv.	G		267	.120		14.80	5.95	.46	21.21
1400	Monitor support, ceiling hung, expansion bolted	G		4	8	Eo.	395	400	30.50	825.50
1450	Hung from pre-set inserts	G		6	5.333		425	266	20.50	711.50
1600	Motor supports for overhead doors	G		4	8		202	400	30.50	632.50
1700	Partition support for heavy folding partitions, without pocket	G		24	1.333	L.F.	57	66.50	5.05	128.55
1750	Supports at pocket only	G		12	2.667		114	133	10.15	257.15
2000	Rolling grilles & fire door supports	G		34	.941		49	47	3.58	99.58
2100	Spider-leg light supports, expansion bolted to ceiling slab	G		8	4	Eo.	163	199	15.20	377.20
2150	Hung from pre-set inserts	G		12	2.667		175	133	10.15	318.15
2400	Toilet partition support	G		36	.889	L.F.	57	44.50	3.38	104.88
2500	X-ray travel gantry support	G		12	2.667		195	133	10.15	338.15

05 12 23.15 Columns, Lightweight

0010	COLUMNS, LIGHTWEIGHT									
1000	Lightweight units (lolly), 3-1/2" diameter		E-2	780	.072	L.F.	7.50	3.46	1.92	12.88
1050	4" diameter		"	900	.062	"	9	3	1.66	13.66
5800	Adjustable jock post, 8' maximum height, 2-3/4" diameter	G				Eo.	44.50			44.50
5850	4" diameter	G				"	71.50			71.50

05 12 23.17 Columns, Structural

0010	COLUMNS, STRUCTURAL									
0015	Mode from recycled materials									
0020	Shop fab'd for 100-ton, 1-2 story project, bolted connections									
0800	Steel, concrete filled, extra strong pipe, 3-1/2" diameter		E-2	660	.085	L.F.	41.50	4.09	2.27	47.86
0830	4" diameter			780	.072		46	3.46	1.92	51.38
0890	5" diameter			1020	.055		55	2.65	1.47	59.12
0930	6" diameter			1200	.047		72.50	2.25	1.25	76
0940	8" diameter			1100	.051		72.50	2.46	1.36	76.32

5 12 Structural Steel Framing

5 12 23 – Structural Steel for Buildings

12 23.17 Columns, Structural				Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	Bare Costs Equipment	Total	Total Incl O&P
00	For galvanizing, add						Lb.	.25			.25	.27
00	For web ties, angles, etc., add per added lb.			1 Sswk	945	.008		1.25	.42		1.67	2.13
00	Steel pipe, extra strong, no concrete, 3" to 5" diameter	G	E-2	16000	.004			1.25	.17	.09	1.51	1.77
00	6" to 12" diameter	G		14000	.004			1.25	.19	.11	1.55	1.83
00	Steel pipe, extra strong, no concrete, 3" diameter x 12'-0"	G		60	.933		EO.	154	45	25	224	274
50	4" diameter x 12'-0"	G		58	.966			225	46.50	26	297.50	355
00	6" diameter x 12'-0"	G		54	1.037			430	50	27.50	507.50	585
50	8" diameter x 14'-0"	G		50	1.120			760	54	30	844	960
00	10" diameter x 16'-0"	G		48	1.167			1,100	56.50	31	1,187.50	1,325
50	12" diameter x 18'-0"	G		45	1.244			1,475	60	33.50	1,568.50	1,775
00	Structural tubing, square, A500GrB, 4" to 6" square, light section	G		11270	.005		Lb.	1.25	.24	.13	1.62	1.94
00	Heavy section	G		32000	.002		"	1.25	.08	.05	1.38	1.57
00	Concrete filled, odd						L.F.	4.03			4.03	4.43
00	Structural tubing, sq, 4" x 4" x 1/4" x 12'-0"	G	E-2	58	.966		EO.	206	46.50	26	278.50	335
50	6" x 6" x 1/4" x 12'-0"	G		54	1.037			340	50	27.50	417.50	485
00	8" x 8" x 3/8" x 14'-0"	G		50	1.120			730	54	30	814	930
50	10" x 10" x 1/2" x 16'-0"	G		48	1.167			1,350	56.50	31	1,437.50	1,625
00	Structural tubing, rect, 5" to 6" wide, light section	G		8000	.007		Lb.	1.25	.34	.19	1.78	2.17
00	Heavy section	G		12000	.005			1.25	.23	.12	1.60	1.91
00	7" to 10" wide, light section	G		15000	.004			1.25	.18	.10	1.53	1.80
00	Heavy section	G		18000	.003			1.25	.15	.08	1.48	1.73
00	Structural tubing, rect, 5" x 3" x 1/4" x 12'-0"	G		58	.966		EO.	200	46.50	26	272.50	330
50	6" x 4" x 5/16" x 12'-0"	G		54	1.037			315	50	27.50	392.50	460
00	8" x 4" x 3/8" x 12'-0"	G		54	1.037			455	50	27.50	532.50	615
50	10" x 6" x 3/8" x 14'-0"	G		50	1.120			730	54	30	814	930
00	12" x 8" x 1/2" x 16'-0"	G		48	1.167			1,350	56.50	31	1,437.50	1,600
00	W Shape, A992 steel, 2 tier, W8 x 24	G		1080	.052		L.F.	33	2.50	1.39	36.89	42.50
50	W8 x 31	G		1080	.052			42.50	2.50	1.39	46.39	53
00	W8 x 48	G		1032	.054			66	2.62	1.45	70.07	78.50
00	W8 x 67	G		984	.057			92	2.75	1.52	96.27	107
00	W10 x 45	G		1032	.054			62	2.62	1.45	66.07	74
50	W10 x 68	G		984	.057			93.50	2.75	1.52	97.77	109
00	W10 x 112	G		960	.058			154	2.82	1.56	158.38	176
50	W12 x 50	G		1032	.054			69	2.62	1.45	73.07	81.50
00	W12 x 87	G		984	.057			120	2.75	1.52	124.27	138
50	W12 x 120	G		960	.058			165	2.82	1.56	169.38	189
00	W12 x 190	G		912	.061			261	2.96	1.64	265.60	294
50	W14 x 74	G		984	.057			102	2.75	1.52	106.27	118
00	W14 x 120	G		960	.058			165	2.82	1.56	169.38	189
50	W14 x 176	G		912	.061			242	2.96	1.64	246.60	273
090	For projects 75 to 99 tons, odd						All	10%				
092	50 to 74 tons, odd							20%				
094	25 to 49 tons, odd							30%	10%			
096	10 to 24 tons, odd							50%	25%			
098	2 to 9 tons, odd							75%	50%			
099	Less than 2 tons, odd							100%	100%			

5 12 23.20 Curb Edging

010	CURB EDGING											
020	Steel angle w/anchors, shop fabricated, on forms, 1" x 1", 0.8#/L.F.	G	E-4	350	.091	L.F.		1.58	4.56	.35	6.49	10.25
00	2" x 2" angles, 3.92#/L.F.	G		330	.097			6.25	4.83	.37	11.45	15.95
200	3" x 3" angles, 6.1#/L.F.	G		300	.107			9.85	5.30	.41	15.56	21
300	4" x 4" angles, 8.2#/L.F.	G		275	.116			13	5.80	.44	19.24	25

05 12 Structural Steel Framing

05 12 23 - Structural Steel for Buildings

05 12 23.20 Curb Edging				Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total	Total Incl O&P
									Labor	Equipment			
1000	6" x 4" angles, 12.3#/L.F.		G	E-4	250	.128	L.F.	19.15	6.40	.49	26.04	33	
1050	Steel channels with anchors, on forms, 3" channel, 5#/L.F.		G		290	.110		7.90	5.50	.42	13.82	18	
1100	4" channel, 5.4#/L.F.		G		270	.119		8.50	5.90	.45	14.85	20	
1200	6" channel, 8.2#/L.F.		G		255	.125		13	6.25	.48	19.73	24	
1300	8" channel, 11.5#/L.F.		G		225	.142		17.95	7.10	.54	25.59	33	
1400	10" channel, 15.3#/L.F.		G		180	.178		23.50	8.85	.68	33.03	42	
1500	12" channel, 20.7#/L.F.		G		140	.229		32	11.40	.87	44.27	54	
2000	For curved edging, add							35%	10%				

05 12 23.40 Lightweight Framing

0010	LIGHTWEIGHT FRAMING		R051223-35									
0015	Made from recycled materials	[G]										
0200	For load-bearing steel studs see Section 05 41 13.30											
0400	Angle framing, field fabricated, 4" and larger	R051223-45	[G]	E-3	440	.055	Lb.	.73	2.73	.28	3.74	8
0450	Less than 4" angles		[G]		265	.091	"	.75	4.53	.46	5.74	9
0460	1/2" x 1/2" x 1/8"		[G]		200	.120	L.F.	.15	6	.61	6.76	11
0462	3/4" x 3/4" x 1/8"		[G]		160	.150		.42	7.50	.76	8.68	14
0464	1" x 1" x 1/8"		[G]		135	.178		.60	8.90	.90	10.40	17
0466	1-1/4" x 1-1/4" x 3/16"		[G]		115	.209		1.11	10.45	1.06	12.62	21
0468	1-1/2" x 1-1/2" x 3/16"		[G]		100	.240		1.35	12	1.22	14.57	24
0470	2" x 2" x 1/4"		[G]		90	.267		2.39	13.35	1.35	17.09	28
0472	2-1/2" x 2-1/2" x 1/4"		[G]		72	.333		3.08	16.65	1.69	21.42	35
0474	3" x 2" x 3/8"		[G]		65	.369		4.43	18.45	1.87	24.75	40
0476	3" x 3" x 3/8"		[G]		57	.421	▼	5.40	21	2.13	28.53	46
0600	Channel framing, field fabricated, 8" and larger		[G]		500	.048	Lb.	.75	2.40	.24	3.39	5
0650	Less than 8" channels		[G]		335	.072	"	.75	3.58	.36	4.69	7
0660	C2 x 1.78		[G]		115	.209	L.F.	1.34	10.45	1.06	12.85	21
0662	C3 x 4.1		[G]		80	.300		3.08	15	1.52	19.60	32
0664	C4 x 5.4		[G]		66	.364		4.05	18.20	1.84	24.09	39
0666	C5 x 6.7		[G]		57	.421		5.05	21	2.13	28.18	45
0668	C6 x 8.2		[G]		55	.436		5.95	22	2.21	30.16	48
0670	C7 x 9.8		[G]		40	.600		7.35	30	3.04	40.39	65
0672	C8 x 11.5		[G]		36	.667		8.65	33.50	3.38	45.53	72
0710	Structural bar tee, field fabricated, 3/4" x 3/4" x 1/8"		[G]		160	.150		.42	7.50	.76	8.68	14
0712	1" x 1" x 1/8"		[G]		135	.178		.60	8.90	.90	10.40	17
0714	1-1/2" x 1-1/2" x 1/4"		[G]		114	.211		1.76	10.55	1.07	13.38	22
0716	2" x 2" x 1/4"		[G]		89	.270		2.39	13.50	1.37	17.26	28
0718	2-1/2" x 2-1/2" x 3/8"		[G]		72	.333		4.43	16.65	1.69	22.77	36
0720	3" x 3" x 3/8"		[G]		57	.421		5.40	21	2.13	28.53	46
0730	Structural zee, field fabricated, 1-1/4" x 1-3/4" x 1-3/4"		[G]		114	.211		.57	10.55	1.07	12.19	20
0732	2-11/16" x 3" x 2-11/16"		[G]		114	.211		1.34	10.55	1.07	12.96	21
0734	3-1/16" x 4" x 3-1/16"		[G]		133	.180		2.02	9.05	.91	11.98	19
0736	3-1/4" x 5" x 3-1/4"		[G]		133	.180		2.75	9.05	.91	12.71	20
0738	3-1/2" x 6" x 3-1/2"		[G]		160	.150		4.15	7.50	.76	12.41	18
0740	Junior beam, field fabricated, 3"		[G]		80	.300		4.28	15	1.52	20.80	33
0742	4"		[G]		72	.333		5.80	16.65	1.69	24.14	38
0744	5"		[G]		67	.358		7.50	17.90	1.82	27.22	42
0746	6"		[G]		62	.387		9.40	19.35	1.96	30.71	47
0748	7"		[G]		57	.421		11.50	21	2.13	34.63	52
0750	8"		[G]	▼	53	.453	▼	13.80	22.50	2.30	38.60	58
1000	Continuous slotted channel framing system, shop fab, minimum		[G]	2 Sswk	2400	.007	Lb.	3.88	.33		4.21	4
1200	Maximum		[G]	"	1600	.010		4.38			4.87	5
1300	Cross bracing, rods, shop fabricated, 3/4" diameter		[G]	E-3	700	.034	▼	1.50	1.72	.17	3.39	4

5 12 Structural Steel Framing

5 12 23 – Structural Steel for Buildings

12 23.40 Lightweight Framing				Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Ind O&P
									Labor	Equipment	Total	
10	7/8" diameter	G	E-3	850	.028	Lb.		1.50	1.41	.14	3.05	4.34
20	1" diameter	G		1000	.024			1.50	1.20	.12	2.82	3.93
30	Angle, 5" x 5" x 3/8"	G		2800	.009			1.50	.43	.04	1.97	2.47
40	Hanging lintels, shop fabricated, average	G		850	.028			1.50	1.41	.14	3.05	4.34
50	Roof frames, shop fabricated, 3'-0" square, 5' span	G	E-2	4200	.013			1.50	.64	.36	2.50	3.14
60	Tie rod, not upset, 1-1/2" to 4" diameter, with turnbuckle	G	2 Sswk	800	.020			1.63	.99		2.62	3.56
70	No turnbuckle	G		700	.023			1.56	1.13		2.69	3.74
80	Upset, 1-3/4" to 4" diameter, with turnbuckle	G		800	.020			1.63	.99		2.62	3.56
90	No turnbuckle	G		700	.023			1.56	1.13		2.69	3.74

12 23.45 Lintels

10	LINTELS										
15	Made from recycled materials		[G]								
20	Plain steel angles, shop fabricated, under 500 lb.		[G]	1 Bric	550	.015	Lb.	.96	.64	1.60	2.03
30	500 to 1000 lb.		[G]		640	.013		.94	.55	1.49	1.86
40	1,000 to 2,000 lb.		[G]		640	.013		.91	.55	1.46	1.83
50	2,000 to 4,000 lb.		[G]	▼	640	.013		.89	.55	1.44	1.81
60	For built-up angles and plates, add to above		[G]					.31		.31	.34
70	For engineering, add to above							.13		.13	.14
80	For galvanizing, add to above, under 500 lb.							.30		.30	.33
90	500 to 2,000 lb.							.27		.27	.30
100	Over 2,000 lb.							.25		.25	.27
110	Steel angles, 3-1/2" x 3", 1/4" thick, 2'-6" long		[G]	1 Bric	47	.170	Eq.	13.50	7.50	21	26
120	4'-6" long		[G]		26	.308		24.50	13.55	38.05	47
130	4" x 3-1/2", 1/4" thick, 5'-0" long		[G]		21	.381		31	16.80	47.80	59.50
140	9'-0" long		[G]	▼	12	.667	▼	56	29.50	85.50	106

5 12 23.60 Pipe Support Framing

10	PIPE SUPPORT FRAMING										
20	Under 10#/L.F., shop fabricated	G	E-4	3900	.008	lb.	1.68	.41	.03	2.12	2.60
00	10.1 to 15#/L.F.	G		4300	.007		1.65	.37	.03	2.05	2.51
00	15.1 to 20#/L.F.	G		4800	.007		1.63	.33	.03	1.99	2.41
00	Over 20#/L.F.	G		5400	.006		1.60	.30	.02	1.92	2.31

5 12 23.65 Plates

PLATES										
10	Made from recycled materials	[G]								
15	For connections & stiffener plates, shop fabricated									
20	1/8" thick (5.1 lb./S.F.)	[G]			S.F.	6.40			6.40	7
30	1/4" thick (10.2 lb./S.F.)	[G]				12.75			12.75	14.05
40	3/8" thick (15.3 lb./S.F.)	[G]				19.15			19.15	21
50	1/2" thick (20.4 lb./S.F.)	[G]				25.50			25.50	28
60	3/4" thick (30.6 lb./S.F.)	[G]				38.50			38.50	42
70	1" thick (40.8 lb./S.F.)	[G]				51			51	56
80	Steel plate, warehouse prices, no shop fabrication									
90	1/4" thick (10.2 lb./S.F.)	[G]			S.F.	8.65			8.65	9.50

5 12 23.70 Stressed Skin Steel Roof and Ceiling System

STRESSED SKIN STEEL ROOF & CEILING SYSTEM											
10	Double panel flat roof, spans to 100'		E-2	1150	.049	S.F.	10	2.35	1.30	13.65	16.45
20	Double panel convex roof, spans to 200'			960	.058		16.25	2.82	1.56	20.63	24.50
30	Double panel arched roof, spans to 300'			760	.074		25	3.56	1.97	30.53	36

5 12 23.75 Structural Steel Members

STRUCTURAL STEEL MEMBERS										
10	Made from recycled materials	[G]								

05 12 Structural Steel Framing

05 12 23 - Structural Steel for Buildings

05 12 23.75 Structural Steel Members

			Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Inst Q8
								Labor	Equipment		
0020	Shop fab'd for 100-ton, 1-2 story project, bolted connections										
0100	W 6 x 9	G	E-2	600	.093	L.F.	12.40	4.50	2.49	19.39	24
0120	x 15	G		600	.093		20.50	4.50	2.49	27.49	33
0140	x 20	G		600	.093		27.50	4.50	2.49	34.49	41
0300	W 8 x 10	G		600	.093		13.75	4.50	2.49	20.74	25
0320	x 15	G		600	.093		20.50	4.50	2.49	27.49	33
0350	x 21	G		600	.093		29	4.50	2.49	35.99	42
0360	x 24	G		550	.102		33	4.91	2.72	40.63	40
0370	x 28	G		550	.102		38.50	4.91	2.72	46.13	54
0500	x 31	G		550	.102		42.50	4.91	2.72	50.13	58
0520	x 35	G		550	.102		48	4.91	2.72	55.63	64
0540	x 48	G		550	.102		66	4.91	2.72	73.63	84
0600	W 10 x 12	G		600	.093		16.50	4.50	2.49	23.49	28
0620	x 15	G		600	.093		20.50	4.50	2.49	27.49	33
0700	x 22	G		600	.093		30.50	4.50	2.49	37.49	44
0720	x 26	G		600	.093		36	4.50	2.49	42.99	50
0740	x 33	G		550	.102		45.50	4.91	2.72	53.13	61
0900	x 49	G		550	.102		67.50	4.91	2.72	75.13	85
1100	W 12 x 16	G		880	.064		22	3.07	1.70	26.77	31
1300	x 22	G		880	.064		30.50	3.07	1.70	35.27	40
1500	x 26	G		880	.064		36	3.07	1.70	40.77	46
1520	x 35	G		810	.069		48	3.34	1.85	53.19	60
1560	x 50	G		750	.075		69	3.60	2	74.60	84
1580	x 58	G		750	.075		80	3.60	2	85.60	96
1700	x 72	G		640	.088		99	4.22	2.34	105.56	119
1740	x 87	G		640	.088		120	4.22	2.34	126.56	147
1900	W 14 x 26	G		990	.057		36	2.73	1.51	40.24	46
2100	x 30	G		900	.062		41.50	3	1.66	46.16	52
2300	x 34	G		810	.069		47	3.34	1.85	52.19	59
2320	x 43	G		810	.069		59	3.34	1.85	64.19	72
2340	x 53	G		800	.070		73	3.38	1.87	78.25	88
2360	x 74	G		760	.074		102	3.56	1.97	107.53	120
2380	x 90	G		740	.076		124	3.65	2.02	129.67	144
2500	x 120	G		720	.078		165	3.75	2.08	170.83	191
2700	W 16 x 26	G		1000	.056		36	2.70	1.50	40.20	46
2900	x 31	G		900	.062		42.50	3	1.66	47.16	54
3100	x 40	G		800	.070		55	3.38	1.87	60.25	68
3120	x 50	G		800	.070		69	3.38	1.87	74.25	83
3140	x 67	G		760	.074		92	3.56	1.97	97.53	108
3300	W 18 x 35	G	E-5	960	.083		48	4.07	1.69	53.76	62
3500	x 40	G		960	.083		55	4.07	1.69	60.76	69
3520	x 46	G		960	.083		63.50	4.07	1.69	69.26	78
3700	x 50	G		912	.088		69	4.28	1.77	75.05	85
3900	x 55	G		912	.088		75.50	4.28	1.77	81.55	92
3920	x 65	G		900	.089		89.50	4.34	1.80	95.64	108
3940	x 76	G		900	.089		105	4.34	1.80	111.14	125
3960	x 86	G		900	.089		118	4.34	1.80	124.14	140
3980	x 106	G		900	.089		146	4.34	1.80	152.14	170
4100	W 21 x 44	G		1064	.075		60.50	3.67	1.52	65.69	74
4300	x 50	G		1064	.075		69	3.67	1.52	74.19	83
4500	x 62	G		1036	.077		85.50	3.77	1.56	90.83	102
4700	x 68	G		1036	.077		93.50	3.77	1.56	98.83	111
4720	x 83	G		1000	.080		114	3.90	1.62	119.52	135

5 12 Structural Steel Framing

5 12 23 – Structural Steel for Buildings

12 23.75 Structural Steel Members				Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bore Costs		Total	Total Incl O&P
									Labor	Equipment		
	x 93	[G]	E-5	1000	.080	L.F.		128	3.90	1.62	133.52	150
	x 101	[G]		1000	.080			139	3.90	1.62	144.52	162
	x 122	[G]		1000	.080			168	3.90	1.62	173.52	194
	W 24 x 55	[G]		1110	.072			75.50	3.52	1.46	80.48	90.50
	x 62	[G]		1110	.072			85.50	3.52	1.46	90.48	102
	x 68	[G]		1110	.072			93.50	3.52	1.46	98.48	111
	x 76	[G]		1110	.072			105	3.52	1.46	109.98	123
	x 84	[G]		1080	.074			116	3.61	1.50	121.11	135
	x 94	[G]		1080	.074			129	3.61	1.50	134.11	150
	x 104	[G]		1050	.076			143	3.72	1.54	148.26	165
	x 117	[G]		1050	.076			161	3.72	1.54	166.26	185
	x 146	[G]		1050	.076			201	3.72	1.54	206.26	229
	W 27 x 84	[G]		1190	.067			116	3.28	1.36	120.64	134
	x 94	[G]		1190	.067			129	3.28	1.36	133.64	149
	x 114	[G]		1150	.070			157	3.39	1.41	161.80	179
	x 146	[G]		1150	.070			201	3.39	1.41	205.80	228
	x 161	[G]		1150	.070			221	3.39	1.41	225.80	251
	W 30 x 99	[G]		1200	.067			136	3.25	1.35	140.60	157
	x 108	[G]		1200	.067			149	3.25	1.35	153.60	170
	x 116	[G]		1160	.069			160	3.37	1.40	164.77	182
	x 132	[G]		1160	.069			182	3.37	1.40	186.77	207
	x 148	[G]		1160	.069			204	3.37	1.40	208.77	231
	x 173	[G]		1120	.071			238	3.49	1.45	242.94	270
	x 191	[G]		1120	.071			263	3.49	1.45	267.94	297
	W 33 x 118	[G]		1176	.068			162	3.32	1.38	166.70	185
	x 130	[G]		1134	.071			179	3.44	1.43	183.87	205
	x 141	[G]		1134	.071			194	3.44	1.43	198.87	221
	x 169	[G]		1100	.073			232	3.55	1.47	237.02	264
	x 201	[G]		1100	.073			276	3.55	1.47	281.02	315
	W 36 x 135	[G]		1170	.068			186	3.34	1.38	190.72	211
	x 150	[G]		1170	.068			206	3.34	1.38	210.72	234
	x 170	[G]		1150	.070			234	3.39	1.41	238.80	264
	x 194	[G]		1125	.071			267	3.47	1.44	271.91	300
	x 231	[G]		1125	.071			320	3.47	1.44	324.91	360
	x 262	[G]		1035	.077			360	3.77	1.56	365.33	405
	x 302	[G]		1035	.077			415	3.77	1.56	420.33	465
	For projects 75 to 99 tons, odd							10%				
	50 to 74 tons, odd							20%				
	25 to 49 tons, odd							30%	10%			
	10 to 24 tons, odd							50%	25%			
	2 to 9 tons, odd							75%	50%			
	Less than 2 tons, odd							100%	100%			

5 12 23.77 Structural Steel Projects

10	STRUCTURAL STEEL PROJECTS			R05016-30										
15	Made from recycled materials			[G]										
20	Shop fab'd for 100-ton, 1-2 story project, bolted connections													
30	Apartments, nursing homes, etc., 1 to 2 stories			R050523-10	[G]	E-5	10.30	7.767	Ton	2,500	380	157	3,037	3,575
40	3 to 6 stories				[G]	"	10.10	7.921		2,550	385	160	3,095	3,650
50	7 to 15 stories			R051223-10	[G]	E-6	14.20	9.014		2,600	440	126	3,166	3,750
60	Over 15 stories				[G]	"	13.90	9.209		2,700	450	129	3,279	3,900
70	Offices, hospitals, etc., steel bearing, 1 to 2 stories			R051223-20	[G]	E-5	10.30	7.767		2,500	380	157	3,037	3,575
80	3 to 6 stories				[G]	E-6	14.40	8.889		2,550	435	124	3,109	3,700

05 12 Structural Steel Framing

05 12 23 - Structural Steel for Buildings

05 12 23.77 Structural Steel Projects					Daily Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs			Total	Total Inc 08
										Labor	Equipment			
0900	7 to 15 stories	R051223-25	[G]		E-6	14.20	9.014	Ton	2,600	440	126		3,166	3,750
1000	Over 15 stories		[G]			13.90	9.209		2,700	450	129		3,279	3,900
1100	For multi-story masonry wall bearing construction, add	R051223-30								30%				
1300	Industrial bldgs., 1 story, beams & girders, steel bearing		[G]		E-5	12.90	6.202		2,500	305	125		2,930	3,425
1400	Masonry bearing		[G]		"	10	8		2,500	390	162		3,052	3,600
1500	Industrial bldgs., 1 story, under 10 tons,													
1510	steel from warehouse, trucked		[G]		E-2	7.50	7.467	Ton	3,000	360	200		3,560	4,150
1600	1 story with roof trusses, steel bearing		[G]		E-5	10.60	7.547		2,950	370	153		3,473	4,050
1700	Masonry bearing		[G]		"	8.30	9.639		2,950	470	195		3,615	4,275
1900	Monumental structures, banks, stores, etc., minimum		[G]		E-6	13	9.846		2,500	480	138		3,118	3,725
2000	Maximum		[G]		"	9	14.222		4,150	695	199		5,044	6,000
2200	Churches, minimum		[G]		E-5	11.60	6.897		2,325	335	140		2,800	3,300
2300	Maximum		[G]		"	5.20	15.385		3,100	750	310		4,160	5,050
2800	Power stations, fossil fuels, minimum		[G]		E-6	11	11.636		2,500	570	163		3,233	3,925
2900	Maximum		[G]			5.70	22.456		3,750	1,100	315		5,165	6,375
2950	Nuclear fuels, non-safety steel, minimum		[G]			7	18.286		2,500	895	256		3,651	4,575
3000	Maximum		[G]			5.50	23.273		3,750	1,125	325		5,200	6,450
3040	Safety steel, minimum		[G]			2.50	51.200		3,650	2,500	715		6,865	9,175
3070	Maximum		[G]			1.50	85.333		4,800	4,175	1,200		10,175	13,900
3100	Roof trusses, minimum		[G]		E-5	13	6.154		3,500	300	124		3,924	4,500
3200	Maximum		[G]			8.30	9.639		4,250	470	195		4,915	5,700
3210	Schools, minimum		[G]			14.50	5.517		2,500	269	112		2,881	3,350
3220	Maximum		[G]			8.30	9.639		3,650	470	195		4,315	5,050
3400	Welded construction, simple commercial bldgs., 1 to 2 stories		[G]		E-7	7.60	10.526		2,550	515	229		3,294	3,950
3500	7 to 15 stories		[G]		E-9	8.30	15.422		2,950	755	254		3,959	4,825
3700	Welded rigid frame, 1 story, minimum		[G]		E-7	15.80	5.063		2,600	247	110		2,957	3,400
3800	Maximum		[G]		"	5.50	14.545		3,375	710	315		4,400	5,300
3810	Fabrication shop costs (included in project material cost, above)													
3820	Mini mill base price, A992		[G]					Ton	860				860	945
3830	Mill extra for delivery to shop								265				265	292
3840	Shop extra for shop drawings and detailing								285				285	315
3850	Shop fabricating and handling								835				835	920
3860	Shop sandblasting and primer coat of paint								145				145	160
3870	Shop delivery to the job site								110				110	121
3880	Total material cost, shop fabricated, primed, delivered								2,500				2,500	2,750
3900	High strength steel mill spec extras:													
3950	A529, A572 (50 ksi) and A36: same as A992 steel (no extra)													
4000	Add to A992 price for A572 (60, 65 ksi)		[G]					Ton	100				100	110
4100	A242 and A588 Weathering		[G]					"	85				85	93.5
4200	Mill size extras for W-Shapes: 0 to 30 plf: no extra charge													
4210	Member sizes 31 to 65 plf, deduct		[G]					Ton	.01				.01	.01
4220	Member sizes 66 to 100 plf, deduct		[G]						5.60				5.60	6.1
4230	Member sizes 101 to 387 plf, add		[G]						56				56	61.5
4300	Column base plates, light, up to 150 lb.		[G]		2 Sswk	2000	.008	Lb.	1.38	.39			1.77	2.1
4400	Heavy, over 150 lb.		[G]		E-2	7500	.007	"	1.44	.36	.20		2	2.4
4600	Costellated beams, light sections, to 50#/L.F., minimum		[G]			10.70	5.234	Ton	2,625	253	140		3,018	3,500
4700	Maximum		[G]			7	8		2,875	385	214		3,474	4,075
4900	Heavy sections, over 50# per L.F., minimum		[G]			11.70	4.786		2,750	231	128		3,109	3,550
5000	Maximum		[G]			7.80	7.179		3,000	345	192		3,537	4,100
5390	For projects 75 to 99 tons, add								10%					
5392	50 to 74 tons, add								20%					
5394	25 to 49 tons, add								30%	10%				
5396	10 to 24 tons, add								50%	25%				

5 12 Structural Steel Framing

5 12 23 – Structural Steel for Buildings

12 23.77 Structural Steel Projects		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
8	2 to 9 tons, add				Ton	75%	50%			
9	Less than 2 tons, add				▼	100%	100%			
12 23.80 Subpurlins										
0	SUBPURLINS		R051223-50							
5	Made from recycled materials									
	Bulb tees, shop fabricated, painted, 32-5/8" O.C., 40 psf LL									
0	Type 178, max 8'-9" span, 2.15 plf, 2" high x 1-5/8" wide									
0	Type 218, max 10'-2" span, 3.19 plf, 2-1/8" high x 2-1/8" wide									
0	Far 24-5/8" spacing, add					33%	33%			
0	Far 48-5/8" spacing, deduct				▼	50%	50%			

5 14 Structural Aluminum Framing

5 14 23 – Non-Exposed Structural Aluminum Framing

14 23.05 Aluminum Shapes

ALUMINUM SHAPES										
5	Made from recycled materials									
0	Structural shapes, 1" to 10" members, under 1 ton									
50	1 to 5 tons									
00	Over 5 tons									
00	Extrusions, over 5 tons, stock shapes									
00	Custom shapes									

5 15 Wire Rope Assemblies

5 15 16 – Steel Wire Rope Assemblies

15 16.05 Accessories for Steel Wire Rope

ACCESSORIES FOR STEEL WIRE ROPE										
15	Made from recycled materials									
00	Thimbles, heavy duty, 1/4"									
10	1/2"									
20	3/4"									
30	1"									
40	1-1/4"									
50	1-1/2"									
60	1-3/4"									
70	2"									
80	2-1/4"									
00	Clips, 1/4" diameter									
10	3/8" diameter									
20	1/2" diameter									
30	3/4" diameter									
40	1" diameter									
50	1-1/4" diameter									
70	1-1/2" diameter									
80	1-3/4" diameter									
90	2" diameter									
00	2-1/4" diameter									
00	Sockets, open swage, 1/4" diameter									
10	1/2" diameter									
20	3/4" diameter									

05 15 Wire Rope Assemblies

05 15 16 - Steel Wire Rope Assemblies

05 15 16.05 Accessories for Steel Wire Rope

			Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&M
								Labor	Equipment		
1830	1" diameter	G	E-17	9	1.778		174	89.50		263.50	350
1840	1-1/4" diameter	G		5	3.200		241	161		402	550
1850	1-1/2" diameter	G		3	5.333		530	269		799	1,050
1860	1-3/4" diameter	G		3	5.333		940	269		1,209	1,500
1870	2" diameter	G		1.50	10.667		1,425	535		1,960	2,500
1900	Closed swage, 1/4" diameter	G		160	.100		25.50	5.05		30.55	37
1910	1/2" diameter	G		104	.154		44	7.75		51.75	62
1920	3/4" diameter	G		32	.500		66	25		91	110
1930	1" diameter	G		15	1.067		116	53.50		169.50	224
1940	1-1/4" diameter	G		7	2.286		174	115		289	400
1950	1-1/2" diameter	G		4	4		315	201		516	705
1960	1-3/4" diameter	G		3	5.333		465	269		734	990
1970	2" diameter	G		2	8		905	405		1,310	1,725
2000	Open spelter, galv., 1/4" diameter	G		160	.100		55	5.05		60.05	70
2010	1/2" diameter	G		70	.229		57.50	11.50		69	84
2020	3/4" diameter	G		26	.615		86.50	31		117.50	151
2030	1" diameter	G		10	1.600		240	80.50		320.50	410
2040	1-1/4" diameter	G		5	3.200		345	161		506	670
2050	1-1/2" diameter	G		4	4		730	201		931	1,150
2060	1-3/4" diameter	G		2	8		1,275	405		1,680	2,125
2070	2" diameter	G		1.20	13.333		1,475	670		2,145	2,800
2080	2-1/2" diameter	G		1	16		2,700	805		3,505	4,400
2100	Closed spelter, galv., 1/4" diameter	G		160	.100		46.50	5.05		51.55	60
2110	1/2" diameter	G		88	.182		49.50	9.15		58.65	71
2120	3/4" diameter	G		30	.533		75.50	27		102.50	131
2130	1" diameter	G		13	1.231		160	62		222	287
2140	1-1/4" diameter	G		7	2.286		256	115		371	490
2150	1-1/2" diameter	G		6	2.667		550	134		684	845
2160	1-3/4" diameter	G		2.80	5.714		735	288		1,023	1,325
2170	2" diameter	G		2	8		905	405		1,310	1,725
2200	Jaw & jaw turnbuckles, 1/4" x 4"	G		160	.100		16.35	5.05		21.40	27
2250	1/2" x 6"	G		96	.167		20.50	8.40		28.90	37
2260	1/2" x 9"	G		77	.208		27.50	10.45		37.95	48
2270	1/2" x 12"	G		66	.242		31	12.20		43.20	56
2300	3/4" x 6"	G		38	.421		40.50	21		61.50	82
2310	3/4" x 9"	G		30	.533		45	27		72	97
2320	3/4" x 12"	G		28	.571		57.50	29		86.50	115
2330	3/4" x 18"	G		23	.696		69	35		104	134
2350	1" x 6"	G		17	.941		78.50	47.50		126	171
2360	1" x 12"	G		13	1.231		86	62		148	206
2370	1" x 18"	G		10	1.600		129	80.50		209.50	286
2380	1" x 24"	G		9	1.778		142	89.50		231.50	315
2400	1-1/4" x 12"	G		7	2.286		145	115		260	365
2410	1-1/4" x 18"	G		6.50	2.462		179	124		303	420
2420	1-1/4" x 24"	G		5.60	2.857		241	144		385	520
2450	1-1/2" x 12"	G		5.20	3.077		425	155		580	740
2460	1-1/2" x 18"	G		4	4		450	201		651	860
2470	1-1/2" x 24"	G		3.20	5		610	252		862	1,125
2500	1-3/4" x 18"	G		3.20	5		920	252		1,172	1,450
2510	1-3/4" x 24"	G		2.80	5.714		1,050	288		1,338	1,675
2550	2" x 24"	G		1.60	10		1,425	505		1,930	2,450

5 15 Wire Rope Assemblies

5 15 16 – Steel Wire Rope Assemblies

5 15 16.50 Steel Wire Rope				Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
STEEL WIRE ROPE												
Made from recycled materials				G								
6 x 19, bright, fiber core, 5000' rolls, 1/2" diameter				G			L.F.	.80			.80	.88
Steel core				G				1.06			1.06	1.16
Fiber core, 1" diameter				G				2.71			2.71	2.98
Steel core				G				3.09			3.09	3.40
6 x 19, galvanized, fiber core, 1/2" diameter				G				1.18			1.18	1.30
Steel core				G				1.35			1.35	1.49
Fiber core, 1" diameter				G				3.47			3.47	3.82
Steel core				G				3.64			3.64	4
6 x 7, bright, IPS, fiber core, <500 L.F. w/acc., 1/4" diameter				G	E-17	6400	.003	1.39	.13		1.52	1.75
1/2" diameter				G		2100	.008	3.38	.38		3.76	4.41
3/4" diameter				G		960	.017	6.10	.84		6.94	8.25
6 x 19, bright, IPS, IWRC, <500 L.F. w/acc., 1/4" diameter				G		5760	.003	.89	.14		1.03	1.23
1/2" diameter				G		1730	.009	1.44	.47		1.91	2.41
3/4" diameter				G		770	.021	2.50	1.05		3.55	4.62
1" diameter				G		420	.038	4.23	1.92		6.15	8.10
1-1/4" diameter				G		290	.055	7	2.78		9.78	12.65
1-1/2" diameter				G		192	.083	8.65	4.20		12.85	17
1-3/4" diameter				G	E-18	240	.167	13.75	8.20	3.96	25.91	33.50
2" diameter				G		160	.250	17.65	12.30	5.95	35.90	47.50
2-1/4" diameter				G		160	.250	23.50	12.30	5.95	41.75	54
6 x 37, bright, IPS, IWRC, <500 L.F. w/acc., 1/4" diameter				G	E-17	6400	.003	1.06	.13		1.19	1.40
1/2" diameter				G		1730	.009	1.80	.47		2.27	2.81
3/4" diameter				G		770	.021	2.91	1.05		3.96	5.05
1" diameter				G		430	.037	4.62	1.87		6.49	8.45
1-1/4" diameter				G		290	.055	7	2.78		9.78	12.60
1-1/2" diameter				G		190	.084	10	4.24		14.24	18.60
1-3/4" diameter				G	E-18	260	.154	15.85	7.55	3.66	27.06	34.50
2" diameter				G		200	.200	20.50	9.85	4.75	35.10	45
2-1/4" diameter				G		160	.250	27	12.30	5.95	45.25	58
6 x 19 & 6 x 37, swaged, 1/2" diameter				G	E-17	1220	.013	2.25	.66		2.91	3.66
9/16" diameter				G		1120	.014	2.62	.72		3.34	4.17
5/8" diameter				G		930	.017	3.11	.87		3.98	4.97
3/4" diameter				G		640	.025	3.96	1.26		5.22	6.60
7/8" diameter				G		480	.033	4.99	1.68		6.67	8.50
1" diameter				G		350	.046	6.10	2.30		8.40	10.80
1-1/8" diameter				G		288	.056	7.50	2.80		10.30	13.25
1-1/4" diameter				G		230	.070	9.05	3.50		12.55	16.25
1-3/8" diameter				G		192	.083	10.45	4.20		14.65	19
1-1/2" diameter				G	E-18	300	.133	12.75	6.55	3.17	22.47	29

5 15 16.60 Galvanized Steel Wire Rope and Accessories

GALVANIZED STEEL WIRE ROPE & ACCESSORIES												
Made from recycled materials				G								
Aircraft cable, galvanized, 7 x 7 x 1/8"				G	E-17	5000	.003	L.F.	.19	.16	.35	.50
Clamps, 1/8"				G	"	125	.128	Ea.	1.85	6.45	8.30	13.55

5 15 16.70 Temporary Cable Safety Railing

TEMPORARY CABLE SAFETY RAILING , Each 100' strand incl.												
2 eyeballs, 1 turnbuckle, 100' cable, 2 thimbles, 6 clips												
Made from recycled materials				G								
One strand using 1/4" cable & accessories				G	2 Sswk	4	4	C.L.F.	196	197	393	570
1/2" cable & accessories				G	"	2	8	"	410	395	805	1,150

05 21 Steel Joist Framing

05 21 13 - Deep Longspan Steel Joist Framing

05 21 13.50 Deep Longspan Joists

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&M
0010	DEEP LONGSPAN JOISTS									
3010	DLH series, 40-ton job lots, bolted cross bridging, shop primer									
3015	Mode from recycled materials	G								
3020	Spans to 144' (shipped in 2 pieces), minimum	G	E-7	16	5 Ton	1,650	244	109	2,003	2,375
3040	Average	G		13	6.154	1,775	300	134	2,209	2,625
3100	Maximum	G		11	7.273	2,150	355	158	2,663	3,175
3200	52DLH11, 26 lb./L.F.	G		2000	.040	22.50	1.95	.87	25.32	29
3220	52DLH16, 45 lb./L.F.	G		2000	.040	40	1.95	.87	42.82	40
3240	56DLH11, 26 lb./L.F.	G		2000	.040	23	1.95	.87	25.82	30
3260	56DLH16, 46 lb./L.F.	G		2000	.040	41	1.95	.87	43.82	40
3280	60DLH12, 29 lb./L.F.	G		2000	.040	26	1.95	.87	28.82	31
3300	60DLH17, 52 lb./L.F.	G		2000	.040	46.50	1.95	.87	49.32	55
3320	64DLH12, 31 lb./L.F.	G		2200	.036	27.50	1.77	.79	30.06	34
3340	64DLH17, 52 lb./L.F.	G		2200	.036	46.50	1.77	.79	49.06	55
3360	68DLH13, 37 lb./L.F.	G		2200	.036	33	1.77	.79	35.56	40
3380	68DLH18, 61 lb./L.F.	G		2200	.036	54.50	1.77	.79	57.06	64
3400	72DLH14, 41 lb./L.F.	G		2200	.036	36.50	1.77	.79	39.06	44
3420	72DLH19, 70 lb./L.F.	G		2200	.036	62.50	1.77	.79	65.06	72
3500	For less than 40-ton job lots									
3502	For 30 to 39 tons, add					10%				
3504	20 to 29 tons, add					20%				
3506	10 to 19 tons, add					30%				
3507	5 to 9 tons, add					50%	25%			
3508	1 to 4 tons, add					75%	50%			
3509	Less than 1 ton, add					100%	100%			
4010	SLH series, 40-ton job lots, bolted cross bridging, shop primer									
4020	Spans to 200' (shipped in 3 pieces), minimum	G	E-7	16	5 Ton	1,625	244	109	1,978	2,350
4040	Average	G		13	6.154	1,825	300	134	2,259	2,700
4060	Maximum	G		11	7.273	2,175	355	158	2,688	3,200
4200	80SLH15, 40 lb./L.F.	G		1500	.053	36.50	2.60	1.16	40.26	46
4220	80SLH20, 75 lb./L.F.	G		1500	.053	68.50	2.60	1.16	72.26	81
4240	88SLH16, 46 lb./L.F.	G		1500	.053	42	2.60	1.16	45.76	52
4260	88SLH21, 89 lb./L.F.	G		1500	.053	81.50	2.60	1.16	85.26	95
4280	96SLH17, 52 lb./L.F.	G		1500	.053	47.50	2.60	1.16	51.26	58
4300	96SLH22, 102 lb./L.F.	G		1500	.053	93.50	2.60	1.16	97.26	109
4320	104SLH18, 59 lb./L.F.	G		1800	.044	54	2.17	.97	57.14	64
4340	104SLH23, 109 lb./L.F.	G		1800	.044	100	2.17	.97	103.14	115
4360	112SLH19, 67 lb./L.F.	G		1800	.044	61.50	2.17	.97	64.64	72
4380	112SLH24, 131 lb./L.F.	G		1800	.044	120	2.17	.97	123.14	137
4400	120SLH20, 77 lb./L.F.	G		1800	.044	70.50	2.17	.97	73.64	82
4420	120SLH25, 152 lb./L.F.	G		1800	.044	139	2.17	.97	142.14	154
6100	For less than 40-ton job lots									
6102	For 30 to 39 tons, add					10%				
6104	20 to 29 tons, add					20%				
6106	10 to 19 tons, add					30%				
6107	5 to 9 tons, add					50%	25%			
6108	1 to 4 tons, add					75%	50%			
6109	Less than 1 ton, add					100%	100%			

05 21 16 - Longspan Steel Joist Framing

05 21 16.50 Longspan Joists

0010	LONGSPAN JOISTS									
2000	LH series, 40-ton job lots, bolted cross bridging, shop primer									

5 21 Steel Joist Framing

21 16 – Longspan Steel Joist Framing

21 16.50 Longspan Joists		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P	
							Labor	Equipment			
5	Made from recycled materials	G									
0	Spans to 96', minimum	G	E-7	16	5	Ton	1,550	244	109	1,903	2,250
0	Average	G		13	6.154		1,700	300	134	2,134	2,550
0	Maximum	G		11	7.273	▼	2,000	355	158	2,513	3,000
0	18LH04, 12 lb./L.F.	G		1400	.057	L.F.	10.15	2.79	1.24	14.18	17.40
0	18LH08, 19 lb./L.F.	G		1400	.057		16.10	2.79	1.24	20.13	24
0	20LH04, 12 lb./L.F.	G		1400	.057		10.15	2.79	1.24	14.18	17.40
0	20LH08, 19 lb./L.F.	G		1400	.057		16.10	2.79	1.24	20.13	24
0	24LH05, 13 lb./L.F.	G		1400	.057		11	2.79	1.24	15.03	18.30
0	24LH10, 23 lb./L.F.	G		1400	.057		19.50	2.79	1.24	23.53	27.50
0	28LH06, 16 lb./L.F.	G		1800	.044		13.55	2.17	.97	16.69	19.75
0	28LH11, 25 lb./L.F.	G		1800	.044		21	2.17	.97	24.14	28.50
0	32LH08, 17 lb./L.F.	G		1800	.044		14.40	2.17	.97	17.54	20.50
0	32LH13, 30 lb./L.F.	G		1800	.044		25.50	2.17	.97	28.64	33
0	36LH09, 21 lb./L.F.	G		1800	.044		17.80	2.17	.97	20.94	24.50
0	36LH14, 36 lb./L.F.	G		1800	.044		30.50	2.17	.97	33.64	38.50
0	40LH10, 21 lb./L.F.	G		2200	.036		17.80	1.77	.79	20.36	23.50
0	40LH15, 36 lb./L.F.	G		2200	.036		30.50	1.77	.79	33.06	37.50
0	44LH11, 22 lb./L.F.	G		2200	.036		18.65	1.77	.79	21.21	24.50
0	44LH16, 42 lb./L.F.	G		2200	.036		35.50	1.77	.79	38.06	43
0	48LH11, 22 lb./L.F.	G		2200	.036		18.65	1.77	.79	21.21	24.50
0	48LH16, 42 lb./L.F.	G	▼	2200	.036	▼	35.50	1.77	.79	38.06	43
0	For less than 40-ton job lots										
2	For 30 to 39 tons, odd						10%				
4	20 to 29 tons, odd						20%				
6	10 to 19 tons, odd						30%				
7	5 to 9 tons, odd						50%	25%			
8	1 to 4 tons, odd						75%	50%			
9	Less than 1 ton, odd						100%	100%			
0	For welded cross bridging, odd							30%			

21 19 – Open Web Steel Joist Framing

21 19.10 Open Web Joists

OPEN WEB JOISTS											
5	Made from recycled materials	G									
0	K series, 40-ton lots, horiz. bridging, spons to 30', shop primer, minimum	G	E-7	15	5.333	Ton	1,350	260	116	1,726	2,075
0	Average	G		12	6.667		1,525	325	145	1,995	2,400
0	Maximum	G		9	8.889		1,825	435	193	2,453	3,000
0	8K1, 5.1 lb./L.F.	G		1200	.067	L.F.	3.90	3.25	1.45	8.60	11.55
0	10K1, 5.0 lb./L.F.	G		1200	.067		3.83	3.25	1.45	8.53	11.45
0	12K3, 5.7 lb./L.F.	G		1500	.053		4.36	2.60	1.16	8.12	10.60
0	14K3, 6.0 lb./L.F.	G		1500	.053		4.59	2.60	1.16	8.35	10.85
0	16K3, 6.3 lb./L.F.	G		1800	.044		4.82	2.17	.97	7.96	10.15
0	16K6, 8.1 lb./L.F.	G		1800	.044		6.20	2.17	.97	9.34	11.65
0	18K5, 7.7 lb./L.F.	G		2000	.040		5.90	1.95	.87	8.72	10.85
0	18K9, 10.2 lb./L.F.	G		2000	.040		7.80	1.95	.87	10.62	12.95
0	Spon 30' to 50', minimum	G		17	4.706	Ton	1,325	230	102	1,657	2,000
0	Average	G		17	4.706		1,500	230	102	1,832	2,175
0	Maximum	G		10	8		1,600	390	174	2,164	2,625
0	20K5, 8.2 lb./L.F.	G		2000	.040	L.F.	6.15	1.95	.87	8.97	11.10
0	20K9, 10.8 lb./L.F.	G		2000	.040		8.10	1.95	.87	10.92	13.25
0	22K5, 8.8 lb./L.F.	G		2000	.040		6.60	1.95	.87	9.42	11.60
0	22K9, 11.3 lb./L.F.	G		2000	.040		8.50	1.95	.87	11.32	13.65

05 21 Steel Joist Framing

05 21 19 - Open Web Steel Joist Framing

05 21 19.10 Open Web Joists		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0580	24K6, 9.7 lb./L.F.	G	E-7	2200	.036	L.F.	7.30	1.77	.79	9.86
0600	24K10, 13.1 lb./L.F.	G		2200	.036		9.85	1.77	.79	12.41
0620	26K6, 10.6 lb./L.F.	G		2200	.036		7.95	1.77	.79	10.51
0640	26K10, 13.8 lb./L.F.	G		2200	.036		10.35	1.77	.79	12.91
0660	28K8, 12.7 lb./L.F.	G		2400	.033		9.55	1.63	.72	11.90
0680	28K12, 17.1 lb./L.F.	G		2400	.033		12.85	1.63	.72	15.20
0700	30K8, 13.2 lb./L.F.	G		2400	.033		9.90	1.63	.72	12.25
0720	30K12, 17.6 lb./L.F.	G		2400	.033		13.20	1.63	.72	15.55
0800	For less than 40-ton job lots									
0802	For 30 to 39 tons, add					10%				
0804	20 to 29 tons, add					20%				
0806	10 to 19 tons, add					30%				
0807	5 to 9 tons, add					50%	25%			
0808	1 to 4 tons, add					75%	50%			
0809	Less than 1 ton, add					100%	100%			
1010	CS series, 40-ton job lots, horizontal bridging, shop primer									
1020	Spans to 30', minimum	G	E-7	15	5.333	Ton	1,425	260	116	1,801
1040	Average	G		12	6.667		1,575	325	145	2,045
1060	Maximum	G		9	8.889		1,850	435	193	2,478
1100	10CS2, 7.5 lb./L.F.	G		1200	.067	L.F.	5.90	3.25	1.45	10.60
1120	12CS2, 8.0 lb./L.F.	G		1500	.053		6.30	2.60	1.16	10.06
1140	14CS2, 8.0 lb./L.F.	G		1500	.053		6.30	2.60	1.16	10.06
1160	16CS2, 8.5 lb./L.F.	G		1800	.044		6.70	2.17	.97	9.84
1180	16CS4, 14.5 lb./L.F.	G		1800	.044		11.40	2.17	.97	14.54
1200	18CS2, 9.0 lb./L.F.	G		2000	.040		7.05	1.95	.87	9.87
1220	18CS4, 15.0 lb./L.F.	G		2000	.040		11.80	1.95	.87	14.62
1240	20CS2, 9.5 lb./L.F.	G		2000	.040		7.45	1.95	.87	10.27
1260	20CS4, 16.5 lb./L.F.	G		2000	.040		12.95	1.95	.87	15.77
1280	22CS2, 10.0 lb./L.F.	G		2000	.040		7.85	1.95	.87	10.67
1300	22CS4, 16.5 lb./L.F.	G		2000	.040		12.95	1.95	.87	15.77
1320	24CS2, 10.0 lb./L.F.	G		2200	.036		7.85	1.77	.79	10.41
1340	24CS4, 16.5 lb./L.F.	G		2200	.036		12.95	1.77	.79	15.51
1360	26CS2, 10.0 lb./L.F.	G		2200	.036		7.85	1.77	.79	10.41
1380	26CS4, 16.5 lb./L.F.	G		2200	.036		12.95	1.77	.79	15.51
1400	28CS2, 10.5 lb./L.F.	G		2400	.033		8.25	1.63	.72	10.60
1420	28CS4, 16.5 lb./L.F.	G		2400	.033		12.95	1.63	.72	15.30
1440	30CS2, 11.0 lb./L.F.	G		2400	.033		8.65	1.63	.72	11.1
1460	30CS4, 16.5 lb./L.F.	G		2400	.033		12.95	1.63	.72	15.30
1500	For less than 40-ton job lots									
1502	For 30 to 39 tons, add					10%				
1504	20 to 29 tons, add					20%				
1506	10 to 19 tons, add					30%				
1507	5 to 9 tons, add					50%	25%			
1508	1 to 4 tons, add					75%	50%			
1509	Less than 1 ton, add					100%	100%			
6200	For shop prime paint other than mfrs. standard, add					20%				
6300	For bottom chord extensions, add per chord	G			Eo.	33				33
6400	Individual steel bearing plate, 6" x 6" x 1/4" with J-hook	G	1 Bric	160	.050	"	7.50	2.21		9.71

05 21 23 - Steel Joist Girder Framing

05 21 23.50 Joist Girders

0010	JOIST GIRDERS										
0015	Made from recycled materials	G									

5 21 Steel Joist Framing

5 21 23 - Steel Joist Girder Framing

				Daily Labor-Hours Unit				2012 Bare Costs			Total	Total Incl O&P
5 21 23.50 Joist Girders				Crew	Output			Material	Labor	Equipment		
0	Joist girders, 40-ton job lots, shop primer, minimum	G	E-5	15	5.333	Ton		1,400	260	108	1,768	2,100
0	Average	G		13	6.154			1,525	300	124	1,949	2,325
0	Maximum	G	▼	11	7.273	▼		1,600	355	147	2,102	2,550
0	For less than 40-ton job lots											
2	For 30 to 39 tons, odd							10%				
4	20 to 29 tons, odd							20%				
6	10 to 19 tons, odd							30%				
7	5 to 9 tons, odd							50%	25%			
8	1 to 4 tons, odd							75%	50%			
9	Less than 1 ton, odd							100%	100%			
0	Trusses, 40-ton job lots, shop fabricated WT chords, shop primer, overage	G	E-5	11	7.273	Ton		5,000	355	147	5,502	6,275
0	For less than 40-ton job lots											
2	For 30 to 39 tons, odd							10%				
4	20 to 29 tons, odd							20%				
6	10 to 19 tons, odd							30%				
7	5 to 9 tons, odd							50%	25%			
8	1 to 4 tons, odd							75%	50%			
9	Less than 1 ton, odd							100%	100%			

5 31 Steel Decking

5 31 13 - Steel Floor Decking

5 31 13.50 Floor Decking											Total	Total Incl O&P
0	FLOOR DECKING		R053100-10									
5	Made from recycled materials	G										
0	Non-cellular composite decking, galvanized, 1-1/2" deep, 16 goug	G	E-4	3500	.009	S.F.		2.95	.46	.03	3.44	4.09
0	18 goug	G		3650	.009			2.39	.44	.03	2.86	3.45
0	20 goug	G		3800	.008			1.90	.42	.03	2.35	2.88
0	2" deep, 22 goug	G		3860	.008			1.65	.41	.03	2.09	2.59
0	20 goug	G		3600	.009			1.83	.44	.03	2.30	2.84
0	18 goug	G		3380	.009			2.34	.47	.04	2.85	3.45
0	16 goug	G		3200	.010			2.91	.50	.04	3.45	4.13
0	3" deep, 22 goug	G		3200	.010			1.80	.50	.04	2.34	2.91
0	20 goug	G		3000	.011			2.01	.53	.04	2.58	3.20
0	18 goug	G		2850	.011			2.49	.56	.04	3.09	3.79
0	16 goug	G	▼	2700	.012	▼		3.31	.59	.05	3.95	4.75

5 31 23 - Steel Roof Decking

5 31 23.50 Roof Decking											Total	Total Incl O&P
0	ROOF DECKING											
15	Made from recycled materials	G										
00	Open type, 1-1/2" deep, Type B, wide rib, galv., 22 goug, under 50 sq.	G	E-4	4500	.007	S.F.		1.74	.35	.03	2.12	2.57
00	50-500 squares	G		4900	.007			1.35	.33	.02	1.70	2.10
00	Over 500 squares	G		5100	.006			1.25	.31	.02	1.58	1.97
00	20 goug, under 50 squares	G		3865	.008			2.05	.41	.03	2.49	3.02
50	50-500 squares	G		4170	.008			1.64	.38	.03	2.05	2.51
00	Over 500 squares	G		4300	.007			1.47	.37	.03	1.87	2.31
00	18 goug, under 50 squares	G		3800	.008			2.65	.42	.03	3.10	3.71
50	50-500 squares	G		4100	.008			2.12	.39	.03	2.54	3.06
00	Over 500 squares	G		4300	.007			1.91	.37	.03	2.31	2.79
50	16 goug, under 50 squares	G		3700	.009			3.57	.43	.03	4.03	4.73
60	50-500 squares	G	▼	4000	.008	▼		2.85	.40	.03	3.28	3.88

05 31 Steel Decking

05 31 23 - Steel Roof Decking

05 31 23.50 Roof Decking			Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
								Labor	Equipment		
3100	Over 500 squares	G	E-4	4200	.008	S.F.	2.57	.38	.03	2.98	3.1
3200	3" deep, Type N, 22 gauge, under 50 squares	G		3600	.009		2.59	.44	.03	3.06	3.1
3250	50-500 squares	G		3800	.008		2.07	.42	.03	2.52	3.1
3260	over 500 squares	G		4000	.008		1.86	.40	.03	2.29	2.1
3300	20 gauge, under 50 squares	G		3400	.009		2.78	.47	.04	3.29	3.1
3350	50-500 squares	G		3600	.009		2.22	.44	.03	2.69	3.1
3360	over 500 squares	G		3800	.008		2	.42	.03	2.45	2.1
3400	18 gauge, under 50 squares	G		3200	.010		3.61	.50	.04	4.15	4.1
3450	50-500 squares	G		3400	.009		2.88	.47	.04	3.39	4.1
3460	over 500 squares	G		3600	.009		2.60	.44	.03	3.07	3.1
3500	16 gauge, under 50 squares	G		3000	.011		4.76	.53	.04	5.33	6.1
3550	50-500 squares	G		3200	.010		3.81	.50	.04	4.35	5.1
3560	over 500 squares	G		3400	.009		3.43	.47	.04	3.94	4.1
3700	4-1/2" deep, Type J, 20 gauge, over 50 squares	G		2700	.012		4.48	.59	.05	5.12	6.1
3800	18 gauge	G		2460	.013		5.75	.65	.05	6.45	7.1
3900	16 gauge	G		2350	.014		4.31	.68	.05	5.04	6.1
4100	6" deep, Type H, 18 gauge, over 50 squares	G		2000	.016		8.25	.80	.06	9.11	10.1
4200	16 gauge	G		1930	.017		6.15	.83	.06	7.04	8.1
4300	14 gauge	G		1860	.017		7.95	.86	.07	8.88	10.1
4500	7-1/2" deep, Type H, 18 gauge, over 50 squares	G		1690	.019		9.05	.94	.07	10.06	11.1
4600	16 gauge	G		1590	.020		6.80	1	.08	7.88	9.1
4700	14 gauge	G		1490	.021		8.70	1.07	.08	9.85	11.1
4800	For painted instead of galvanized, deduct						5%				
5000	For acoustical perforated with fiberglass insulation, add					S.F.	25%				
5100	For type F intermediate rib instead of type B wide rib, add	G					25%				
5150	For type A narrow rib instead of type B wide rib, add	G					25%				

05 31 33 - Steel Form Decking

05 31 33.50 Form Decking											
0010	FORM DECKING										
0015	Made from recycled materials	G									
6100	Slab form, steel, 28 gauge, 9/16" deep, Type UFS, uncoated	G	E-4	4000	.008	S.F.	1.32	.40	.03	1.75	2.1
6200	Galvanized	G		4000	.008		1.17	.40	.03	1.60	2.1
6220	24 gauge, 1" deep, Type UFX, uncoated	G		3900	.008		1.28	.41	.03	1.72	2.1
6240	Galvanized	G		3900	.008		1.50	.41	.03	1.94	2.1
6300	24 gauge, 1-5/16" deep, Type UFX, uncoated	G		3800	.008		1.35	.42	.03	1.80	2.1
6400	Galvanized	G		3800	.008		1.59	.42	.03	2.04	2.1
6500	22 gauge, 1-5/16" deep, uncoated	G		3700	.009		1.70	.43	.03	2.16	2.1
6600	Galvanized	G		3700	.009		1.73	.43	.03	2.19	2.1
6700	22 gauge, 2" deep, uncoated	G		3600	.009		2.23	.44	.03	2.70	3.1
6800	Galvanized	G		3600	.009		2.19	.44	.03	2.66	3.1
7000	Sheet metal edge closure form, 12" wide with 2 bends, galvanized										
7100	18 gauge	G	E-14	360	.022	L.F.	3.59	1.14	.34	5.07	6.1
7200	16 gauge	G	"	360	.022	"	4.88	1.14	.34	6.36	7.1

5 35 Raceway Decking Assemblies

5 35 13 - Steel Cellular Decking

5 35 13.50 Cellular Decking		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
CELLULAR DECKING										
Made from recycled materials		G								
Cellular units, galv, 1-1/2" deep, Type BC, 20-20 gauge, over 15 squares		G	E-4	1460	.022	S.F.	6.95	1.09	.08	9.65
18-20 gauge		G		1420	.023		7.85	1.12	.09	10.75
18-18 gauge		G		1390	.023		8.05	1.15	.09	11.05
16-18 gauge		G		1360	.024		9.60	1.17	.09	12.80
16-16 gauge		G		1330	.024		10.70	1.20	.09	14.05
3" deep, Type NC, galvanized, 20-20 gauge		G		1375	.023		7.60	1.16	.09	10.55
18-20 gauge		G		1350	.024		9.20	1.18	.09	12.35
18-18 gauge		G		1290	.025		9.15	1.24	.09	12.40
16-18 gauge		G		1230	.026		10.35	1.30	.10	13.80
16-16 gauge		G		1150	.028		11.25	1.39	.11	15
4-1/2" deep, Type JC, galvanized, 18-20 gauge		G		1100	.029		10.60	1.45	.11	14.40
18-18 gauge		G		1040	.031		10.55	1.53	.12	14.45
16-18 gauge		G		980	.033		11.90	1.63	.12	16.15
16-16 gauge		G		935	.034		12.95	1.71	.13	17.45
For acoustical deck, add						15%				
For cells used for ventilation, add						15%				
For multi-story or congested site, add							50%			
Metal deck and trench, 2" thick, 20 gauge, combination										
60% cellular, 40% non-cellular, inserts and trench		G	R-4	1100	.036	S.F.	13.85	1.82	.11	18.50

5 41 Structural Metal Stud Framing

5 41 13 - Load-Bearing Metal Stud Framing

5 41 13.05 Bracing

BRACING , shear wall X-bracing, per 10' x 10' bay, one face										
Made of recycled materials		G								
Metal strap, 20 ga x 4" wide		G	2 Carp	18	.889	Ea.	19.80	39		82.50
6" wide		G		18	.889		33	39	72	96.50
18 ga x 4" wide		G		16	1		34	44	78	106
6" wide		G		16	1		50	44	94	123
Continuous strap bracing, per horizontal row on both faces										
Metal strap, 20 ga x 2" wide, studs 12" O.C.		G	1 Carp	7	1.143	C.L.F.	59.50	50.50	110	143
16" O.C.		G		8	1		59.50	44	103.50	134
24" O.C.		G		10	.800		59.50	35.50	95	120
18 ga x 2" wide, studs 12" O.C.		G		6	1.333		81.50	59	140.50	180
16" O.C.		G		7	1.143		81.50	50.50	132	167
24" O.C.		G		8	1		81.50	44	125.50	158

5 41 13.10 Bridging

BRIDGING , solid between studs w/1-1/4" leg track, per stud bay										
Made from recycled materials		G								
Studs 12" O.C., 18 ga x 2-1/2" wide		G	1 Carp	125	.064	Ea.	.99	2.82	3.81	5.45
3-5/8" wide		G		120	.067		1.20	2.94	4.14	5.85
4" wide		G		120	.067		1.26	2.94	4.20	5.90
6" wide		G		115	.070		1.65	3.07	4.72	6.55
8" wide		G		110	.073		2.05	3.21	5.26	7.20
16 ga x 2-1/2" wide		G		115	.070		1.26	3.07	4.33	6.10
3-5/8" wide		G		110	.073		1.53	3.21	4.74	6.60
4" wide		G		110	.073		1.62	3.21	4.83	6.70
6" wide		G		105	.076		2.08	3.36	5.44	7.45
8" wide		G		100	.080		2.61	3.53	6.14	8.30

05 41 Structural Metal Stud Framing

05 41 13 - Load-Bearing Metal Stud Framing

05 41 13.10 Bridging

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
1200	Studs 16" O.C., 18 ga x 2-1/2" wide	G	1 Corp	125	.064	Ea.	1.27	2.82	4.09	5
1210	3-5/8" wide	G		120	.067		1.53	2.94	4.47	6
1220	4" wide	G		120	.067		1.62	2.94	4.56	6
1230	6" wide	G		115	.070		2.11	3.07	5.18	7
1240	8" wide	G		110	.073		2.62	3.21	5.83	7
1300	16 ga x 2-1/2" wide	G		115	.070		1.62	3.07	4.69	6
1310	3-5/8" wide	G		110	.073		1.96	3.21	5.17	7
1320	4" wide	G		110	.073		2.08	3.21	5.29	7
1330	6" wide	G		105	.076		2.67	3.36	6.03	8
1340	8" wide	G		100	.080		3.35	3.53	6.88	9
2200	Studs 24" O.C., 18 ga x 2-1/2" wide	G		125	.064		1.84	2.82	4.66	6
2210	3-5/8" wide	G		120	.067		2.22	2.94	5.16	6
2220	4" wide	G		120	.067		2.34	2.94	5.28	7
2230	6" wide	G		115	.070		3.06	3.07	6.13	8
2240	8" wide	G		110	.073		3.80	3.21	7.01	9
2300	16 ga x 2-1/2" wide	G		115	.070		2.34	3.07	5.41	7
2310	3-5/8" wide	G		110	.073		2.84	3.21	6.05	8
2320	4" wide	G		110	.073		3.01	3.21	6.22	8
2330	6" wide	G		105	.076		3.87	3.36	7.23	9
2340	8" wide	G		100	.080		4.85	3.53	8.38	10
3000	Continuous bridging, per row									
3100	16 ga x 1-1/2" channel thru studs 12" O.C.	G	1 Corp	6	1.333	C.L.F.	54	59	113	150
3110	16" O.C.	G		7	1.143		54	50.50	104.50	137
3120	24" O.C.	G		8.80	.909		54	40	94	121
4100	2" x 2" angle x 18 ga, studs 12" O.C.	G		7	1.143		82.50	50.50	133	169
4110	16" O.C.	G		9	.889		82.50	39	121.50	152
4120	24" O.C.	G		12	.667		82.50	29.50	112	136
4200	16 ga, studs 12" O.C.	G		5	1.600		106	70.50	176.50	225
4210	16" O.C.	G		7	1.143		106	50.50	156.50	194
4220	24" O.C.	G		10	.800		106	35.50	141.50	171

05 41 13.25 Framing, Boxed Headers/Beams

0010	FRAMING, BOXED HEADERS/BEAMS									
0015	Made from recycled materials	G								
0200	Double, 18 ga x 6" deep	G	2 Corp	220	.073	L.F.	5.70	3.21	8.91	11
0210	8" deep	G		210	.076		6.25	3.36	9.61	12
0220	10" deep	G		200	.080		7.65	3.53	11.18	13
0230	12" deep	G		190	.084		8.35	3.71	12.06	14
0300	16 ga x 8" deep	G		180	.089		7.25	3.92	11.17	14
0310	10" deep	G		170	.094		8.75	4.15	12.90	16
0320	12" deep	G		160	.100		9.50	4.41	13.91	17
0400	14 ga x 10" deep	G		140	.114		10.10	5.05	15.15	18
0410	12" deep	G		130	.123		11.05	5.45	16.50	20
1210	Triple, 18 ga x 8" deep	G		170	.094		9.10	4.15	13.25	16
1220	10" deep	G		165	.097		11	4.28	15.28	18
1230	12" deep	G		160	.100		12.05	4.41	16.46	20
1300	16 ga x 8" deep	G		145	.110		10.50	4.87	15.37	19
1310	10" deep	G		140	.114		12.65	5.05	17.70	21
1320	12" deep	G		135	.119		13.75	5.25	19	23
1400	14 ga x 10" deep	G		115	.139		13.75	6.15	19.90	24
1410	12" deep	G		110	.145		15.20	6.40	21.60	26

5 41 Structural Metal Stud Framing

5 41 13 – Load-Bearing Metal Stud Framing

41 13.30 Framing, Stud Walls		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	Bare Costs Equipment	Total	Total Incl O&P
FRAMING, STUD WALLS w/top & bottom track, no openings,										
Headers, beams, bridging or bracing										
Made from recycled materials										
8' high walls, 18 ga x 2-1/2" wide, studs 12" O.C.		G	2 Corp	54	.296	L.F.	9.40	13.05	22.45	30.50
16" O.C.		G		77	.208		7.55	9.15	16.70	22.50
24" O.C.		G		107	.150		5.65	6.60	12.25	16.35
3-5/8" wide, studs 12" O.C.		G		53	.302		11.25	13.30	24.55	33
16" O.C.		G		76	.211		9	9.30	18.30	24
24" O.C.		G		105	.152		6.75	6.70	13.45	17.80
4" wide, studs 12" O.C.		G		52	.308		11.75	13.55	25.30	34
16" O.C.		G		74	.216		9.40	9.55	18.95	25
24" O.C.		G		103	.155		7.10	6.85	13.95	18.35
6" wide, studs 12" O.C.		G		51	.314		14.90	13.85	28.75	38
16" O.C.		G		73	.219		11.95	9.65	21.60	28
24" O.C.		G		101	.158		9	7	16	20.50
8" wide, studs 12" O.C.		G		50	.320		18.15	14.10	32.25	41.50
16" O.C.		G		72	.222		14.60	9.80	24.40	31
24" O.C.		G		100	.160		11	7.05	18.05	23
16 ga x 2-1/2" wide, studs 12" O.C.		G		47	.340		11.15	15	26.15	35.50
16" O.C.		G		68	.235		8.85	10.40	19.25	25.50
24" O.C.		G		94	.170		6.55	7.50	14.05	18.75
3-5/8" wide, studs 12" O.C.		G		46	.348		13.30	15.35	28.65	38
16" O.C.		G		66	.242		10.55	10.70	21.25	28
24" O.C.		G		92	.174		7.80	7.65	15.45	20.50
4" wide, studs 12" O.C.		G		45	.356		14.10	15.70	29.80	39.50
16" O.C.		G		65	.246		11.15	10.85	22	29
24" O.C.		G		90	.178		8.25	7.85	16.10	21
6" wide, studs 12" O.C.		G		44	.364		17.55	16.05	33.60	44
16" O.C.		G		64	.250		13.95	11.05	25	32.50
24" O.C.		G		88	.182		10.35	8	18.35	23.50
8" wide, studs 12" O.C.		G		43	.372		21.50	16.40	37.90	49.50
16" O.C.		G		63	.254		17.20	11.20	28.40	36
24" O.C.		G		86	.186		12.80	8.20	21	26.50
10' high walls, 18 ga x 2-1/2" wide, studs 12" O.C.		G		54	.296		11.30	13.05	24.35	32.50
16" O.C.		G		77	.208		8.95	9.15	18.10	24
24" O.C.		G		107	.150		6.60	6.60	13.20	17.40
3-5/8" wide, studs 12" O.C.		G		53	.302		13.50	13.30	26.80	35.50
16" O.C.		G		76	.211		10.70	9.30	20	26
24" O.C.		G		105	.152		7.90	6.70	14.60	19
4" wide, studs 12" O.C.		G		52	.308		14.10	13.55	27.65	36.50
16" O.C.		G		74	.216		11.20	9.55	20.75	27
24" O.C.		G		103	.155		8.25	6.85	15.10	19.65
6" wide, studs 12" O.C.		G		51	.314		17.85	13.85	31.70	41
16" O.C.		G		73	.219		14.15	9.65	23.80	30.50
24" O.C.		G		101	.158		10.50	7	17.50	22.50
8" wide, studs 12" O.C.		G		50	.320		21.50	14.10	35.60	45.50
16" O.C.		G		72	.222		17.25	9.80	27.05	34
24" O.C.		G		100	.160		12.80	7.05	19.85	25
16 ga x 2-1/2" wide, studs 12" O.C.		G		47	.340		13.50	15	28.50	38
16" O.C.		G		68	.235		10.60	10.40	21	27.50
24" O.C.		G		94	.170		7.70	7.50	15.20	20
3-5/8" wide, studs 12" O.C.		G		46	.348		16.10	15.35	31.45	41

05 41 Structural Metal Stud Framing

05 41 13 - Load-Bearing Metal Stud Framing

05 41 13.30 Framing, Stud Walls

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor Equipment	Total	Total Incl O&M
5340	16" O.C.	G 2 Corp	66	.242	L.F.	12.65	10.70	23.35	30
5350	24" O.C.	G	92	.174		9.20	7.65	16.85	22
5360	4" wide, studs 12" O.C.	G	45	.356		17	15.70	32.70	42
5370	16" O.C.	G	65	.246		13.35	10.85	24.20	31
5380	24" O.C.	G	90	.178		9.70	7.85	17.55	22
5390	6" wide, studs 12" O.C.	G	44	.364		21	16.05	37.05	48
5400	16" O.C.	G	64	.250		16.65	11.05	27.70	35
5410	24" O.C.	G	88	.182		12.15	8	20.15	25
5420	8" wide, studs 12" O.C.	G	43	.372		26	16.40	42.40	54
5430	16" O.C.	G	63	.254		20.50	11.20	31.70	40
5440	24" O.C.	G	86	.186		15	8.20	23.20	29
6190	12' high walls, 18 ga x 6" wide, studs 12" O.C.	G	41	.390		21	17.20	38.20	49
6200	16" O.C.	G	58	.276		16.35	12.15	28.50	36
6210	24" O.C.	G	81	.198		11.95	8.70	20.65	26
6220	8" wide, studs 12" O.C.	G	40	.400		25.50	17.65	43.15	55
6230	16" O.C.	G	57	.281		19.90	12.40	32.30	41
6240	24" O.C.	G	80	.200		14.60	8.80	23.40	29
6390	16 ga x 6" wide, studs 12" O.C.	G	35	.457		24.50	20	44.50	58
6400	16" O.C.	G	51	.314		19.35	13.85	33.20	43
6410	24" O.C.	G	70	.229		13.95	10.10	24.05	31
6420	8" wide, studs 12" O.C.	G	34	.471		30.50	21	51.50	65
6430	16" O.C.	G	50	.320		24	14.10	38.10	48
6440	24" O.C.	G	69	.232		17.20	10.25	27.45	34
6530	14 ga x 3-5/8" wide, studs 12" O.C.	G	34	.471		23.50	21	44.50	58
6540	16" O.C.	G	48	.333		18.50	14.70	33.20	43
6550	24" O.C.	G	65	.246		13.30	10.85	24.15	31
6560	4" wide, studs 12" O.C.	G	33	.485		25	21.50	46.50	60
6570	16" O.C.	G	47	.340		19.45	15	34.45	44
6580	24" O.C.	G	64	.250		14	11.05	25.05	32
6730	12 ga x 3-5/8" wide, studs 12" O.C.	G	31	.516		33	23	56	71
6740	16" O.C.	G	43	.372		25.50	16.40	41.90	53
6750	24" O.C.	G	59	.271		17.85	11.95	29.80	38
6760	4" wide, studs 12" O.C.	G	30	.533		35	23.50	58.50	74
6770	16" O.C.	G	42	.381		27	16.80	43.80	55
6780	24" O.C.	G	58	.276		19	12.15	31.15	39
7390	16' high walls, 16 ga x 6" wide, studs 12" O.C.	G	33	.485		32	21.50	53.50	68
7400	16" O.C.	G	48	.333		24.50	14.70	39.20	49
7410	24" O.C.	G	67	.239		17.55	10.55	28.10	35
7420	8" wide, studs 12" O.C.	G	32	.500		39.50	22	61.50	77
7430	16" O.C.	G	47	.340		30.50	15	45.50	56
7440	24" O.C.	G	66	.242		21.50	10.70	32.20	40
7560	14 ga x 4" wide, studs 12" O.C.	G	31	.516		32	23	55	70
7570	16" O.C.	G	45	.356		25	15.70	40.70	51
7580	24" O.C.	G	61	.262		17.65	11.55	29.20	37
7590	6" wide, studs 12" O.C.	G	30	.533		40.50	23.50	64	80
7600	16" O.C.	G	44	.364		31.50	16.05	47.55	59
7610	24" O.C.	G	60	.267		22.50	11.75	34.25	42
7760	12 ga x 4" wide, studs 12" O.C.	G	29	.552		45.50	24.50	70	87
7770	16" O.C.	G	40	.400		35	17.65	52.65	65
7780	24" O.C.	G	55	.291		24.50	12.85	37.35	46
7790	6" wide, studs 12" O.C.	G	28	.571		57.50	25	82.50	103
7800	16" O.C.	G	39	.410		44	18.10	62.10	76
7810	24" O.C.	G	54	.296		31	13.05	44.05	54

5 41 Structural Metal Stud Framing

5 41 13 – Load-Bearing Metal Stud Framing

41 13.30 Framing, Stud Walls		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Ind O&P
20'	20" high walls, 14 ga x 6" wide, studs 12" O.C.	G	2 Corp	29	.552	L.F.	50	24.50	74.50	92.50
40	16" O.C.	G		42	.381		38.50	16.80	55.30	68
0	24" O.C.	G		57	.281		27	12.40	39.40	48.50
20	8" wide, studs 12" O.C.	G		28	.571		54	25	79	98.50
40	16" O.C.	G		41	.390		41.50	17.20	58.70	72.50
40	24" O.C.	G		56	.286		29.50	12.60	42.10	52
20	12 ga x 6" wide, studs 12" O.C.	G		27	.593		71	26	97	118
40	16" O.C.	G		37	.432		54	19.05	73.05	89
40	24" O.C.	G		51	.314		37.50	13.85	51.35	62.50
20	8" wide, studs 12" O.C.	G		26	.615		86	27	113	137
30	16" O.C.	G		36	.444		65.50	19.60	85.10	102
40	24" O.C.	G	▼	50	.320	▼	45.50	14.10	59.60	71.50

5 42 Cold-Formed Metal Joist Framing

5 42 13 – Cold-Formed Metal Floor Joist Framing

42 13.05 Bracing

10	BRACING, continuous, per row, top & bottom									
15	Made from recycled materials	G								
20	Floor stop, 20 ga x 2" wide, joists at 12" O.C.	G	1 Corp	4.67	1.713	C.L.F.	62	75.50	137.50	185
30	16" O.C.	G		5.33	1.501		60	66	126	168
40	24" O.C.	G		6.66	1.201		58	53	111	145
50	18 ga x 2" wide, joists at 12" O.C.	G		4	2		80.50	88	168.50	225
60	16" O.C.	G		4.67	1.713		79	75.50	154.50	203
70	24" O.C.	G	▼	5.33	1.501	▼	77.50	66	143.50	188

5 42 13.10 Bridging

10	BRIDGING, solid between joists w/1-1/4" leg track, per joist bay									
15	Made from recycled materials	G								
30	Joists 12" O.C., 18 ga track x 6" wide	G	1 Corp	80	.100	Eq.	1.65	4.41	6.06	8.60
40	8" wide	G		75	.107		2.05	4.70	6.75	9.50
50	10" wide	G		70	.114		2.55	5.05	7.60	10.55
60	12" wide	G		65	.123		2.90	5.45	8.35	11.55
30	16 ga track x 6" wide	G		70	.114		2.08	5.05	7.13	10.05
40	8" wide	G		65	.123		2.61	5.45	8.06	11.20
50	10" wide	G		60	.133		3.23	5.90	9.13	12.60
60	12" wide	G		55	.145		3.71	6.40	10.11	13.95
40	14 ga track x 8" wide	G		60	.133		3.26	5.90	9.16	12.65
50	10" wide	G		55	.145		4.04	6.40	10.44	14.30
60	12" wide	G		50	.160		4.67	7.05	11.72	16
50	12 ga track x 10" wide	G		45	.178		5.90	7.85	13.75	18.55
60	12" wide	G		40	.200		6.05	8.80	14.85	20
30	16" O.C., 18 ga track x 6" wide	G		80	.100		2.11	4.41	6.52	9.10
40	8" wide	G		75	.107		2.62	4.70	7.32	10.15
50	10" wide	G		70	.114		3.27	5.05	8.32	11.35
60	12" wide	G		65	.123		3.71	5.45	9.16	12.45
30	16 ga track x 6" wide	G		70	.114		2.67	5.05	7.72	10.70
40	8" wide	G		65	.123		3.35	5.45	8.80	12.05
50	10" wide	G		60	.133		4.14	5.90	10.04	13.60
60	12" wide	G		55	.145		4.75	6.40	11.15	15.10
40	14 ga track x 8" wide	G		60	.133		4.17	5.90	10.07	13.65
50	10" wide	G		55	.145		5.20	6.40	11.60	15.55
60	12" wide	G	▼	50	.160	▼	6	7.05	13.05	17.45

05 42 Cold-Formed Metal Joist Framing

05 42 13 - Cold-Formed Metal Floor Joist Framing

05 42 13.10 Bridging

			Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl C
1550	12 ga track x 10" wide	G	1 Corp	45	.178	Ea.	7.55	7.85		15.40	2
1560	12" wide	G		40	.200		7.75	8.80		16.55	2
2230	24" O.C., 18 ga track x 6" wide	G		80	.100		3.06	4.41		7.47	1
2240	8" wide	G		75	.107		3.80	4.70		8.50	1
2250	10" wide	G		70	.114		4.73	5.05		9.78	1
2260	12" wide	G		65	.123		5.35	5.45		10.80	1
2330	16 ga track x 6" wide	G		70	.114		3.87	5.05		8.92	1
2340	8" wide	G		65	.123		4.85	5.45		10.30	1
2350	10" wide	G		60	.133		6	5.90		11.90	1
2360	12" wide	G		55	.145		6.85	6.40		13.25	1
2440	14 ga track x 8" wide	G		60	.133		6.05	5.90		11.95	1
2450	10" wide	G		55	.145		7.50	6.40		13.90	1
2460	12" wide	G		50	.160		8.65	7.05		15.70	2
2550	12 ga track x 10" wide	G		45	.178		10.95	7.85		18.80	2
2560	12" wide	G		40	.200		11.25	8.80		20.05	2

05 42 13.25 Framing, Band Joist

0010	FRAMING, BAND JOIST (track) fastened to bearing wall										
0015	Made from recycled materials	G									
0220	18 ga track x 6" deep	G	2 Corp	1000	.016	L.F.	1.34	.71		2.05	2
0230	8" deep	G		920	.017		1.67	.77		2.44	3
0240	10" deep	G		860	.019		2.08	.82		2.90	3
0320	16 ga track x 6" deep	G		900	.018		1.70	.78		2.48	3
0330	8" deep	G		840	.019		2.13	.84		2.97	3
0340	10" deep	G		780	.021		2.64	.90		3.54	4
0350	12" deep	G		740	.022		3.02	.95		3.97	4
0430	14 ga track x 8" deep	G		750	.021		2.66	.94		3.60	4
0440	10" deep	G		720	.022		3.30	.98		4.28	5
0450	12" deep	G		700	.023		3.81	1.01		4.82	5
0540	12 ga track x 10" deep	G		670	.024		4.82	1.05		5.87	6
0550	12" deep	G		650	.025		4.95	1.09		6.04	7

05 42 13.30 Framing, Boxed Headers/Beams

0010	FRAMING, BOXED HEADERS/BEAMS										
0015	Made from recycled materials	G									
0200	Double, 18 ga x 6" deep	G	2 Corp	220	.073	L.F.	5.70	3.21		8.91	11
0210	8" deep	G		210	.076		6.25	3.36		9.61	12
0220	10" deep	G		200	.080		7.65	3.53		11.18	13
0230	12" deep	G		190	.084		8.35	3.71		12.06	14
0300	16 ga x 8" deep	G		180	.089		7.25	3.92		11.17	14
0310	10" deep	G		170	.094		8.75	4.15		12.90	16
0320	12" deep	G		160	.100		9.50	4.41		13.91	17
0400	14 ga x 10" deep	G		140	.114		10.10	5.05		15.15	18
0410	12" deep	G		130	.123		11.05	5.45		16.50	20
0500	12 ga x 10" deep	G		110	.145		13.30	6.40		19.70	24
0510	12" deep	G		100	.160		14.70	7.05		21.75	27
1210	Triple, 18 ga x 8" deep	G		170	.094		9.10	4.15		13.25	16
1220	10" deep	G		165	.097		11	4.28		15.28	18
1230	12" deep	G		160	.100		12.05	4.41		16.46	20
1300	16 ga x 8" deep	G		145	.110		10.50	4.87		15.37	19
1310	10" deep	G		140	.114		12.65	5.05		17.70	22
1320	12" deep	G		135	.119		13.75	5.25		19	23
1400	14 ga x 10" deep	G		115	.139		14.65	6.15		20.80	25
1410	12" deep	G		110	.145		16.10	6.40		22.50	27

5 42 Cold-Formed Metal Joist Framing

5 42 13 – Cold-Formed Metal Floor Joist Framing

42 13.30 Framing, Boxed Headers/Beams		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
0	12 ga x 10" deep	G	2 Corp	90	.178	L.F.	19.45	7.85	27.30	33.50
0	12" deep	G	▼	85	.188	▼	21.50	8.30	29.80	37

42 13.40 Framing, Joists

FRAMING, JOISTS, no band joists (track), web stiffeners, headers, Beams, bridging or bracing										
25	Made from recycled materials	G								
30	Joists (2" flange) and fasteners, materials only									
20	18 ga x 6" deep	G			L.F.	1.75			1.75	1.93
30	8" deep	G				2.06			2.06	2.26
40	10" deep	G				2.43			2.43	2.67
20	16 ga x 6" deep	G				2.14			2.14	2.36
30	8" deep	G				2.56			2.56	2.82
40	10" deep	G				3			3	3.30
50	12" deep	G				3.40			3.40	3.74
30	14 ga x 8" deep	G				3.21			3.21	3.53
40	10" deep	G				3.72			3.72	4.09
50	12" deep	G				4.22			4.22	4.64
40	12 ga x 10" deep	G				5.40			5.40	5.95
50	12" deep	G			▼	6.15			6.15	6.75
10	Installation of joists to band joists, beams & headers, labor only									
20	18 ga x 6" deep		2 Corp	110	.145	Eo.	6.40		6.40	9.85
30	8" deep			90	.178		7.85		7.85	12.05
40	10" deep			80	.200		8.80		8.80	13.55
20	16 ga x 6" deep			95	.168		7.45		7.45	11.45
30	8" deep			70	.229		10.10		10.10	15.50
40	10" deep			60	.267		11.75		11.75	18.10
50	12" deep			55	.291		12.85		12.85	19.75
30	14 ga x 8" deep			65	.246		10.85		10.85	16.70
40	10" deep			45	.356		15.70		15.70	24
50	12" deep			35	.457		20		20	31
40	12 ga x 10" deep			40	.400		17.65		17.65	27
50	12" deep		▼	30	.533	▼	23.50		23.50	36

5 42 13.45 Framing, Web Stiffeners

FRAMING, WEB STIFFENERS at joist bearing, fabricated from Stud piece (1-5/8" flange) to stiffen joist (2" flange)										
25	Made from recycled materials	G								
20	For 6" deep joist, with 18 ga x 2-1/2" stud	G	1 Corp	120	.067	Eo.	2.07	2.94	5.01	6.80
30	3-5/8" stud	G		110	.073		2.30	3.21	5.51	7.45
40	4" stud	G		105	.076		2.22	3.36	5.58	7.60
50	6" stud	G		100	.080		2.43	3.53	5.96	8.10
60	8" stud	G		95	.084		2.49	3.71	6.20	8.45
20	8" deep joist, with 2-1/2" stud	G		120	.067		2.27	2.94	5.21	7
30	3-5/8" stud	G		110	.073		2.48	3.21	5.69	7.65
40	4" stud	G		105	.076		2.43	3.36	5.79	7.80
50	6" stud	G		100	.080		2.66	3.53	6.19	8.40
60	8" stud	G		95	.084		2.86	3.71	6.57	8.85
20	10" deep joist, with 2-1/2" stud	G		110	.073		3.20	3.21	6.41	8.45
30	3-5/8" stud	G		100	.080		3.53	3.53	7.06	9.35
40	4" stud	G		95	.084		3.50	3.71	7.21	9.55
50	6" stud	G		90	.089		3.78	3.92	7.70	10.20
60	8" stud	G		85	.094		3.84	4.15	7.99	10.65
20	12" deep joist, with 2-1/2" stud	G		110	.073		3.38	3.21	6.59	8.65

05 42 Cold-Formed Metal Joist Framing

05 42 13 - Cold-Formed Metal Floor Joist Framing

05 42 13.45 Framing, Web Stiffeners		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
		1 Corp					Labor	Equipment		
2430	3-5/8" stud	G	100	.080		3.70	3.53		7.23	9.5
2440	4" stud	G	95	.084		3.63	3.71		7.34	9.7
2450	6" stud	G	90	.089		3.97	3.92		7.89	10.4
2460	8" stud	G	85	.094		4.27	4.15		8.42	11.3
3130	For 6" deep joist, with 16 go x 3-5/8" stud	G	100	.080		2.42	3.53		5.95	8.1
3140	4" stud	G	95	.084		2.41	3.71		6.12	8.3
3150	6" stud	G	90	.089		2.61	3.92		6.53	8.8
3160	8" stud	G	85	.094		2.78	4.15		6.93	9.4
3230	8" deep joist, with 3-5/8" stud	G	100	.080		2.68	3.53		6.21	8.4
3240	4" stud	G	95	.084		2.64	3.71		6.35	8.6
3250	6" stud	G	90	.089		2.89	3.92		6.81	9.2
3260	8" stud	G	85	.094		3.12	4.15		7.27	9.8
3330	10" deep joist, with 3-5/8" stud	G	85	.094		3.67	4.15		7.82	10.4
3340	4" stud	G	80	.100		3.76	4.41		8.17	10.5
3350	6" stud	G	75	.107		4.03	4.70		8.73	11.2
3360	8" stud	G	70	.114		4.24	5.05		9.29	12.1
3430	12" deep joist, with 3-5/8" stud	G	85	.094		4	4.15		8.15	10.1
3440	4" stud	G	80	.100		3.94	4.41		8.35	11.1
3450	6" stud	G	75	.107		4.32	4.70		9.02	12
3460	8" stud	G	70	.114		4.66	5.05		9.71	12.9
4230	For 8" deep joist, with 14 go x 3-5/8" stud	G	90	.089		3.48	3.92		7.40	9.1
4240	4" stud	G	85	.094		3.54	4.15		7.69	10.1
4250	6" stud	G	80	.100		3.84	4.41		8.25	11
4260	8" stud	G	75	.107		3.61	4.70		8.31	11.1
4330	10" deep joist, with 3-5/8" stud	G	75	.107		4.88	4.70		9.58	12
4340	4" stud	G	70	.114		4.83	5.05		9.88	13
4350	6" stud	G	65	.123		5.30	5.45		10.75	14
4360	8" stud	G	60	.133		4.88	5.90		10.78	14
4430	12" deep joist, with 3-5/8" stud	G	75	.107		5.20	4.70		9.90	12
4440	4" stud	G	70	.114		5.30	5.05		10.35	13
4450	6" stud	G	65	.123		5.75	5.45		11.20	14
4460	8" stud	G	60	.133		5.40	5.90		11.30	15
5330	For 10" deep joist, with 12 go x 3-5/8" stud	G	65	.123		5.15	5.45		10.60	14
5340	4" stud	G	60	.133		5.30	5.90		11.20	14
5350	6" stud	G	55	.145		5.85	6.40		12.25	16
5360	8" stud	G	50	.160		6.35	7.05		13.40	17
5430	12" deep joist, with 3-5/8" stud	G	65	.123		5.75	5.45		11.20	14
5440	4" stud	G	60	.133		5.55	5.90		11.45	15
5450	6" stud	G	55	.145		6.35	6.40		12.75	16
5460	8" stud	G	50	.160		7.25	7.05		14.30	18

05 42 23 - Cold-Formed Metal Roof Joist Framing

05 42 23.05 Framing, Bracing										
0010	FRAMING, BRACING									
0015	Made from recycled materials	G								
0020	Continuous bracing, per row									
0100	16 go x 1-1/2" channel thru rafters/trusses @ 16" O.C.	G	1 Corp	4.50	1.778	C.L.F.	54	78.50	132.50	181
0120	24" O.C.	G		6	1.333		54	59	113	150
0300	2" x 2" angle x 18 go, rafters/trusses @ 16" O.C.	G		6	1.333		82.50	59	141.50	182
0320	24" O.C.	G		8	1		82.50	44	126.50	151
0400	16 go, rafters/trusses @ 16" O.C.	G		4.50	1.778		106	78.50	184.50	237
0420	24" O.C.	G		6.50	1.231		106	54.50	160.50	200

5 42 Cold-Formed Metal Joist Framing

5 42 23 - Cold-Formed Metal Roof Joist Framing

5 42 23.10 Framing, Bridging		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
10	FRAMING, BRIDGING									
15	Made from recycled materials	G								
20	Solid, between rafters w/1-1/4" leg track, per rafter bay									
00	Rafters 16" O.C., 18 ga x 4" deep	G	1 Corp	60	.133	Ea.	1.62	5.90	7.52	10.85
10	6" deep	G		57	.140		2.11	6.20	8.31	11.80
20	8" deep	G		55	.145		2.62	6.40	9.02	12.75
30	10" deep	G		52	.154		3.27	6.80	10.07	14.05
40	12" deep	G		50	.160		3.71	7.05	10.76	14.95
00	24" O.C., 18 ga x 4" deep	G		60	.133		2.34	5.90	8.24	11.60
10	6" deep	G		57	.140		3.06	6.20	9.26	12.85
20	8" deep	G		55	.145		3.80	6.40	10.20	14
30	10" deep	G		52	.154		4.73	6.80	11.53	15.65
40	12" deep	G		50	.160		5.35	7.05	12.40	16.75

5 42 23.50 Framing, Parapets

010	FRAMING, PARAPETS									
015	Made from recycled materials	G								
100	3' high installed on 1st story, 18 ga x 4" wide studs, 12" O.C.	G	2 Corp	100	.160	L.F.	5.90	7.05	12.95	17.35
110	16" O.C.	G		150	.107		5.05	4.70	9.75	12.80
120	24" O.C.	G		200	.080		4.16	3.53	7.69	10
200	6" wide studs, 12" O.C.	G		100	.160		7.55	7.05	14.60	19.15
210	16" O.C.	G		150	.107		6.45	4.70	11.15	14.35
220	24" O.C.	G		200	.080		5.35	3.53	8.88	11.35
100	Installed on 2nd story, 18 ga x 4" wide studs, 12" O.C.	G		95	.168		5.90	7.45	13.35	17.95
110	16" O.C.	G		145	.110		5.05	4.87	9.92	13.05
120	24" O.C.	G		190	.084		4.16	3.71	7.87	10.25
200	6" wide studs, 12" O.C.	G		95	.168		7.55	7.45	15	19.75
210	16" O.C.	G		145	.110		6.45	4.87	11.32	14.60
220	24" O.C.	G		190	.084		5.35	3.71	9.06	11.60
100	Installed on gable, 18 ga x 4" wide studs, 12" O.C.	G		85	.188		5.90	8.30	14.20	19.25
110	16" O.C.	G		130	.123		5.05	5.45	10.50	13.90
120	24" O.C.	G		170	.094		4.16	4.15	8.31	10.95
200	6" wide studs, 12" O.C.	G		85	.188		7.55	8.30	15.85	21
210	16" O.C.	G		130	.123		6.45	5.45	11.90	15.45
220	24" O.C.	G		170	.094		5.35	4.15	9.50	12.30

05 42 23.60 Framing, Roof Rafters

0010	FRAMING, ROOF RAFTERS									
0015	Made from recycled materials	G								
0100	Banded ridge beam, double, 18 ga x 6" deep	G	2 Corp	160	.100	L.F.	5.70	4.41	10.11	13.05
0110	8" deep	G		150	.107		6.25	4.70	10.95	14.15
0120	10" deep	G		140	.114		7.65	5.05	12.70	16.15
0130	12" deep	G		130	.123		8.35	5.45	13.80	17.55
0200	16 ga x 6" deep	G		150	.107		6.45	4.70	11.15	14.35
0210	8" deep	G		140	.114		7.25	5.05	12.30	15.70
0220	10" deep	G		130	.123		8.75	5.45	14.20	17.95
0230	12" deep	G		120	.133		9.50	5.90	15.40	19.50
1100	Rafters, 2" flange, material only, 18 ga x 6" deep	G					1.75		1.75	1.93
1110	8" deep	G					2.06		2.06	2.26
1120	10" deep	G					2.43		2.43	2.67
1130	12" deep	G					2.80		2.80	3.08
1200	16 ga x 6" deep	G					2.14		2.14	2.36
1210	8" deep	G					2.56		2.56	2.82
1220	10" deep	G					3		3	3.30

05 42 Cold-Formed Metal Joist Framing

05 42 23 - Cold-Formed Metal Roof Joist Framing

05 42 23.60 Framing, Roof Rafter				Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl
									Labor	Equipment		
1230	12" deep	[G]					L.F.	3.40			3.40	
2100	Installation only, ordinary rafter to 4:12 pitch, 18 ga x 6" deep			2 Corp	35	.457	Ea.		20		20	
2110	8" deep				30	.533			23.50		23.50	
2120	10" deep				25	.640			28		28	
2130	12" deep				20	.800			35.50		35.50	
2200	16 ga x 6" deep				30	.533			23.50		23.50	
2210	8" deep				25	.640			28		28	
2220	10" deep				20	.800			35.50		35.50	
2230	12" deep				15	1.067			47		47	
8100	Add to labor, ordinary rafters on steep roofs								25%			
8110	Darmer & complex roofs								50%			
8200	Hip & valley rafters to 4:12 pitch								25%			
8210	Steep roofs								50%			
8220	Darmer & complex roofs								75%			
8300	Hip & valley jack rafters to 4:12 pitch								50%			
8310	Steep roofs								75%			
8320	Darmer & complex roofs								100%			

05 42 23.70 Framing, Soffits and Canopies

0010	FRAMING, SOFFITS & CANOPIES											
0015	Made from recycled materials	[G]										
0130	Continuous ledger track @ wall, studs @ 16" O.C., 18 ga x 4" wide	[G]		2 Corp	535	.030	L.F.	1.08	1.32		2.40	
0140	6" wide	[G]			500	.032		1.41	1.41		2.82	
0150	8" wide	[G]			465	.034		1.75	1.52		3.27	
0160	10" wide	[G]			430	.037		2.18	1.64		3.82	
0230	Studs @ 24" O.C., 18 ga x 4" wide	[G]			800	.020		1.03	.88		1.91	
0240	6" wide	[G]			750	.021		1.34	.94		2.28	
0250	8" wide	[G]			700	.023		1.67	1.01		2.68	
0260	10" wide	[G]			650	.025		2.08	1.09		3.17	
1000	Horizontal soffit and canopy members, material only											
1030	1-5/8" flange studs, 18 ga x 4" deep	[G]					L.F.	1.40			1.40	
1040	6" deep	[G]						1.76			1.76	
1050	8" deep	[G]						2.14			2.14	
1140	2" flange joists, 18 ga x 6" deep	[G]						2			2	
1150	8" deep	[G]						2.35			2.35	
1160	10" deep	[G]						2.77			2.77	
4030	Installation only, 18 ga, 1-5/8" flange x 4" deep			2 Corp	130	.123	Ea.		5.45		5.45	
4040	6" deep				110	.145			6.40		6.40	
4050	8" deep				90	.178			7.85		7.85	
4140	2" flange, 18 ga x 6" deep				110	.145			6.40		6.40	
4150	8" deep				90	.178			7.85		7.85	
4160	10" deep				80	.200			8.80		8.80	
6010	Clips to attach fascia to rafter tails, 2" x 2" x 18 ga angle	[G]		1 Corp	120	.067		.98	2.94		3.92	
6020	16 ga angle	[G]		"	100	.080		1.25	3.53		4.78	

5 44 Cold-Formed Metal Trusses

44 13 – Cold-Formed Metal Roof Trusses

44 13.60 Framing, Roof Trusses		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bore Costs		Total	Total Incl O&P	
FRAMING, ROOF TRUSSES							Labor	Equipment			
5	Made from recycled materials	G									
0	Fabrication of trusses on ground, Fink (W) or King Post, to 4:12 pitch										
0	18 ga x 4" chords, 16' span	G	2 Carp	12	1.333	Ea.	65.50	59	124.50	163	
0	20' span	G		11	1.455		82	64	146	189	
0	24' span	G		11	1.455		98.50	64	162.50	207	
0	28' span	G		10	1.600		115	70.50	185.50	235	
0	32' span	G		10	1.600		131	70.50	201.50	253	
0	6" chords, 28' span	G		9	1.778		144	78.50	222.50	279	
0	32' span	G		9	1.778		165	78.50	243.50	300	
0	36' span	G		8	2		185	88	273	340	
0	40' span	G		8	2		206	88	294	360	
0	5:12 to 8:12 pitch, 18 ga x 4" chords, 16' span	G		10	1.600		75	70.50	145.50	192	
0	20' span	G		9	1.778		93.50	78.50	172	224	
0	24' span	G		9	1.778		112	78.50	190.50	245	
0	28' span	G		8	2		131	88	219	280	
0	32' span	G		8	2		150	88	238	300	
0	6" chords, 28' span	G		7	2.286		165	101	266	335	
0	32' span	G		7	2.286		188	101	289	360	
0	36' span	G		6	2.667		212	118	330	415	
0	40' span	G		6	2.667		235	118	353	440	
0	9:12 to 12:12 pitch, 18 ga x 4" chords, 16' span	G		8	2		93.50	88	181.50	239	
0	20' span	G		7	2.286		117	101	218	284	
0	24' span	G		7	2.286		140	101	241	310	
0	28' span	G		6	2.667		164	118	282	360	
0	32' span	G		6	2.667		187	118	305	385	
0	6" chords, 28' span	G		5	3.200		206	141	347	445	
0	32' span	G		5	3.200		235	141	376	475	
0	36' span	G		4	4		265	176	441	560	
0	40' span	G		4	4		294	176	470	595	
0	Erection only of roof trusses, to 4:12 pitch, 16' span	F-6		48	.833			34.50	12.75	47.25	66.50
0	20' span			46	.870			36	13.30	49.30	69.50
0	24' span			44	.909			37.50	13.90	51.40	73
0	28' span			42	.952			39.50	14.55	54.05	76
0	32' span			40	1			41	15.30	56.30	80
0	36' span			38	1.053			43.50	16.10	59.60	84
0	40' span			36	1.111			46	17	63	88.50
0	5:12 to 8:12 pitch, 16' span			42	.952			39.50	14.55	54.05	76
0	20' span			40	1			41	15.30	56.30	80
0	24' span			38	1.053			43.50	16.10	59.60	84
0	28' span			36	1.111			46	17	63	88.50
0	32' span			34	1.176			48.50	18	66.50	94.50
0	36' span			32	1.250			51.50	19.15	70.65	100
0	40' span			30	1.333			55	20.50	75.50	107
0	9:12 to 12:12 pitch, 16' span			36	1.111			46	17	63	88.50
0	20' span			34	1.176			48.50	18	66.50	94.50
0	24' span			32	1.250			51.50	19.15	70.65	100
0	28' span			30	1.333			55	20.50	75.50	107
0	32' span			28	1.429			59	22	81	114
0	36' span			26	1.538			63.50	23.50	87	123
0	40' span			24	1.667			68.50	25.50	94	133

05 51 Metal Stairs

05 51 13 – Metal Pan Stairs

05 51 13.50 Pan Stairs

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind.
							Labor	Equipment		
0010	PAN STAIRS, shop fabricated, steel stringers									
0015	Made from recycled materials	G								
0200	Cement fill metal pan, picket rail, 3'-6" wide	G	E-4	35	.914	Riser	465	45.50	3.47	513.97
0300	4'-0" wide	G		30	1.067		525	53	4.05	582.05
0350	Wall rail, both sides, 3'-6" wide	G		53	.604	▼	355	30	2.29	387.29
1500	Landing, steel pan, conventional	G		160	.200	S.F.	62	9.95	.76	72.71
1600	Pre-erected	G	▼	255	.125	"	110	6.25	.48	116.73
1700	Pre-erected, steel pan tread, 3'-6" wide, 2 line pipe rail	G	E-2	87	.644	Riser	515	31	17.20	563.20

05 51 16 – Metal Floor Plate Stairs

05 51 16.50 Floor Plate Stairs

0010	FLOOR PLATE STAIRS, shop fabricated, steel stringers									
0015	Made from recycled materials	G								
0400	Cast iron tread and pipe rail, 3'-6" wide	G	E-4	35	.914	Riser	500	45.50	3.47	548.97
0500	Checkered plate tread, industrial, 3'-6" wide	G		28	1.143		310	57	4.34	371.34
0550	Circular, for tanks, 3'-0" wide	G	▼	33	.970		345	48.50	3.68	397.18
0600	For isolated stairs, add							100%		
0800	Custom steel stairs, 3'-6" wide, minimum	G	E-4	35	.914		465	45.50	3.47	513.97
0810	Average	G		30	1.067		620	53	4.05	677.05
0900	Maximum	G	▼	20	1.600		775	80	6.10	861.10
1100	For 4' wide stairs, add						5%	5%		
1300	For 5' wide stairs, add						10%	10%		

05 51 19 – Metal Grating Stairs

05 51 19.50 Grating Stairs

0010	GRATING STAIRS, shop fabricated, steel stringers, safety nosing on treads									
0015	Made from recycled materials	G								
0020	Grating tread and pipe railing, 3'-6" wide	G	E-4	35	.914	Riser	310	45.50	3.47	358.97
0100	4'-0" wide	G	"	30	1.067	"	405	53	4.05	462.05

05 51 23 – Metal Fire Escapes

05 51 23.25 Fire Escapes

0010	FIRE ESCAPES, shop fabricated									
0200	2' wide balcony, 1" x 1/4" bars 1-1/2" O.C., with railing	G	2 Sswk	10	1.600	L.F.	55	79		134
0400	1st story cantilevered stair, standard, with railing	G		.50	32	Ea.	2,275	1,575		3,850
0500	Cable counterweighted, with railing			.40	40	"	2,100	1,975		4,075
0700	36" x 40" platform & fixed stair, with railing	G	▼	.40	40	Flight	1,000	1,975		2,975
0900	For 3'-6" wide escapes, add to above						100%	150%		

05 51 23.50 Fire Escape Stairs

0010	FIRE ESCAPE STAIRS, portable									
0100	Portable ladder					Ea.	127			127

05 51 33 – Metal Ladders

05 51 33.13 Vertical Metal Ladders

0010	VERTICAL METAL LADDERS, shop fabricated									
0015	Made from recycled materials	G								
0020	Steel, 20" wide, bolted to concrete, with cage	G	E-4	50	.640	V.L.F.	65	32	2.43	99.43
0100	Without cage	G		85	.376		36	18.75	1.43	56.18
0300	Aluminum, bolted to concrete, with cage	G		50	.640		111	32	2.43	145.43
0400	Without cage	G	▼	85	.376	▼	48	18.75	1.43	68.18

05 51 33.16 Inclined Metal Ladders

0010	INCLINED METAL LADDERS, shop fabricated									
0015	Made from recycled materials	G								
3900	Industrial ships ladder, steel, 24" W, grating treads, 2 line pipe rail	G	E-4	30	1.067	Riser	187	53	4.05	244.05

51 Metal Stairs

51 33 – Metal Ladders

1 33.16 Inclined Metal Ladders		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
Aluminum		E-4	30	1.067	Riser	206	53	4.05	263.05	325
1 33.23 Alternating Tread Ladders										
ALTERNATING TREAD LADDERS, shop fabricated										
Made from recycled materials		G								
Alternating tread stair, 56/68°, steel, standard paint color		G	2 Sswk	50	.320	V.L.F.	258	15.80	273.80	310
Non-standard paint color		G		50	.320		292	15.80	307.80	350
Galvanized steel		G		50	.320		300	15.80	315.80	360
Stainless steel		G		50	.320		435	15.80	450.80	505
68°, aluminum		G		50	.320		315	15.80	330.80	380

52 Metal Railings

52 13 – Pipe and Tube Railings

52 13.50 Railings, Pipe

RAILINGS, PIPE, shop fab'd, 3'-6" high, posts @ 5' O.C.										
Made from recycled materials		G								
Aluminum, 2 rail, satin finish, 1-1/4" diameter		G	E-4	160	.200	L.F.	35	9.95	.76	45.71
Clear anodized		G		160	.200		43	9.95	.76	53.71
Dark anodized		G		160	.200		48	9.95	.76	58.71
1-1/2" diameter, satin finish		G		160	.200		41.50	9.95	.76	52.21
Clear anodized		G		160	.200		46.50	9.95	.76	57.21
Dark anodized		G		160	.200		51	9.95	.76	61.71
Aluminum, 3 rail, 1-1/4" diam., satin finish		G		137	.234		53	11.65	.89	65.54
Clear anodized		G		137	.234		66	11.65	.89	78.54
Dark anodized		G		137	.234		73	11.65	.89	85.54
1-1/2" diameter, satin finish		G		137	.234		63	11.65	.89	75.54
Clear anodized		G		137	.234		72	11.65	.89	84.54
Dark anodized		G		137	.234		78.50	11.65	.89	91.04
Steel, 2 rail, on stairs, primed, 1-1/4" diameter		G		160	.200		23.50	9.95	.76	34.21
1-1/2" diameter		G		160	.200		25.50	9.95	.76	36.21
Galvanized, 1-1/4" diameter		G		160	.200		32	9.95	.76	42.71
1-1/2" diameter		G		160	.200		36	9.95	.76	46.71
Steel, 3 rail, primed, 1-1/4" diameter		G		137	.234		35	11.65	.89	47.54
1-1/2" diameter		G		137	.234		36.50	11.65	.89	49.04
Galvanized, 1-1/4" diameter		G		137	.234		49	11.65	.89	61.54
1-1/2" diameter		G		137	.234		57	11.65	.89	69.54
Stainless steel, 2 rail, 1-1/4" diam. #4 finish		G		137	.234		103	11.65	.89	115.54
High polish		G		137	.234		167	11.65	.89	179.54
Mirror polish		G		137	.234		210	11.65	.89	222.54
Stainless steel, 3 rail, 1-1/2" diam., #4 finish		G		120	.267		156	13.30	1.01	170.31
High polish		G		120	.267		258	13.30	1.01	272.31
Mirror finish		G		120	.267		315	13.30	1.01	329.31
Wall rail, alum. pipe, 1-1/4" diam., satin finish		G		213	.150		19.75	7.50	.57	27.82
Clear anodized		G		213	.150		24.50	7.50	.57	32.57
Dark anodized		G		213	.150		29	7.50	.57	37.07
1-1/2" diameter, satin finish		G		213	.150		22	7.50	.57	30.07
Clear anodized		G		213	.150		27.50	7.50	.57	35.57
Dark anodized		G		213	.150		34	7.50	.57	42.07
Steel pipe, 1-1/4" diameter, primed		G		213	.150		14	7.50	.57	22.07
Galvanized		G		213	.150		20.50	7.50	.57	28.57
1-1/2" diameter		G		176	.182		14.50	9.05	.69	24.24
Galvanized		G		213	.150		20.50	7.50	.57	28.57

05 52 Metal Railings

05 52 13 - Pipe and Tube Railings

05 52 13.50 Railings, Pipe

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind Cost
							Labor	Equipment		
0955	Stainless steel pipe, 1-1/2" diam., #4 finish	G	E-4	107	.299	L.F.	82.50	14.90	1.14	98.54
0960	High polish	G		107	.299		168	14.90	1.14	184.04
0965	Mirror polish	G		107	.299		199	14.90	1.14	215.04
2000	2-line pipe rail (1-1/2" T&B) with 1/2" pickets @ 4-1/2" O.C.,									
2005	attached handrail on brackets									
2010	42" high aluminum, satin finish, straight & level	G	E-4	120	.267	L.F.	193	13.30	1.01	207.31
2050	42" high steel, primed, straight & level	G	"	120	.267		119	13.30	1.01	133.31
4000	For curved and level rails, add						10%	10%		
4100	For sloped rails for stairs, add						30%	30%		

05 52 16 - Industrial Railings

05 52 16.50 Railings, Industrial

0010	RAILINGS, INDUSTRIAL, shop fab'd, 3'-6" high, posts @ 5' O.C.									
0020	2 rail, 3'-6" high, 1-1/2" pipe	G	E-4	255	.125	L.F.	25.50	6.25	.48	32.23
0100	2" angle rail	G	"	255	.125		23.50	6.25	.48	30.23
0200	For 4" high kick plate, 10 gauge, add	G					5.30			5.30
0300	1/4" thick, add	G					6.90			6.90
0500	For curved level rails, add						10%	10%		
0550	For sloped rails for stairs, add						30%	30%		

05 53 Metal Gratings

05 53 13 - Bar Gratings

05 53 13.10 Floor Grating, Aluminum

0010	FLOOR GRATING, ALUMINUM, field fabricated from panels									
0015	Made from recycled materials	G								
0110	Bearing bars @ 1-3/16" O.C., cross bars @ 4" O.C.,									
0111	Up to 300 S.F., 1" x 1/8" bar	G	E-4	900	.036	S.F.	23.50	1.77	.14	25.41
0112	Over 300 S.F.	G		850	.038		21.50	1.88	.14	23.52
0113	1-1/4" x 1/8" bar, up to 300 S.F.	G		800	.040		27.50	1.99	.15	29.64
0114	Over 300 S.F.	G		1000	.032		25	1.60	.12	26.72
0122	1-1/4" x 3/16" bar, up to 300 S.F.	G		750	.043		36	2.13	.16	38.29
0124	Over 300 S.F.	G		1000	.032		32.50	1.60	.12	34.22
0132	1-1/2" x 3/16" bar, up to 300 S.F.	G		700	.046		41.50	2.28	.17	43.95
0134	Over 300 S.F.	G		1000	.032		37.50	1.60	.12	39.22
0136	1-3/4" x 3/16" bar, up to 300 S.F.	G		500	.064		50	3.19	.24	53.43
0138	Over 300 S.F.	G		1000	.032		45.50	1.60	.12	47.22
0146	2-1/4" x 3/16" bar, up to 300 S.F.	G		600	.053		69	2.66	.20	71.86
0148	Over 300 S.F.	G		1000	.032		62.50	1.60	.12	64.22
0162	Cross bars @ 2" O.C., 1" x 1/8", up to 300 S.F.	G		600	.053		30.50	2.66	.20	33.36
0164	Over 300 S.F.	G		1000	.032		27.50	1.60	.12	29.22
0172	1-1/4" x 3/16" bar, up to 300 S.F.	G		600	.053		40.50	2.66	.20	43.36
0174	Over 300 S.F.	G		1000	.032		37	1.60	.12	38.72
0182	1-1/2" x 3/16" bar, up to 300 S.F.	G		600	.053		45.50	2.66	.20	48.36
0184	Over 300 S.F.	G		1000	.032		41.50	1.60	.12	43.22
0186	1-3/4" x 3/16" bar, up to 300 S.F.	G		600	.053		55.50	2.66	.20	58.36
0188	Over 300 S.F.	G		1000	.032		50.50	1.60	.12	52.22
0200	For straight cuts, add					L.F.	3.90			3.90
0300	For curved cuts, add						4.80			4.80
0400	For straight bonding, add	G					5			5
0500	For curved bonding, add	G					6			6
0600	For aluminum checkered plate nosings, add	G					6.50			6.50

53 Metal Gratings

53 13 – Bar Gratings

		Daily	Labor-	Unit	Material	2012 Bare Costs		Total	Total
		Crew	Output	Hours		Labor	Equipment		Incl O&P
53 13.10 Floor Grating, Aluminum									
For straight toe plate, odd	G			L.F.	9.80			9.80	10.80
For curved toe plate, odd	G				11.45			11.45	12.60
For cast aluminum abrasive nosings, odd	G			↓	9.55			9.55	10.50
Expanded aluminum, .65# per S.F.	G	E-4	1050	.030	S.F.	11.65	1.52	.12	13.29
Extruded 1 bars are 10% less than 3/16" bars									
Heavy duty, all extruded plank, 3/4" deep, 1.8# per S.F.	G	E-4	1100	.029	S.F.	30	1.45	.11	31.56
1-1/4" deep, 2.9# per S.F.	G		1000	.032		35	1.60	.12	36.72
1-3/4" deep, 4.2# per S.F.	G		925	.035		42	1.72	.13	43.85
2-1/4" deep, 5.0# per S.F.	G	↓	875	.037	↓	50	1.82	.14	51.96
For safety serrated surface, odd					15%				
53 13.70 Floor Grating, Steel									
FLOOR GRATING, STEEL , field fabricated from panels									
Made from recycled materials	G								
Platforms, to 12' high, rectangular	G	E-4	3150	.010	Lb.	3.20	.51	.04	3.75
Circular	G	"	2300	.014	"	4	.69	.05	4.74
Painted bearing bars @ 1-3/16"									
Cross bars @ 4" O.C., 3/4" x 1/8" bar, up to 300 S.F.	G	E-2	500	.112	S.F.	8.55	5.40	2.99	16.94
Over 300 S.F.	G		750	.075		7.80	3.60	2	13.40
1-1/4" x 3/16", up to 300 S.F.	G		400	.140		13.20	6.75	3.74	23.69
Over 300 S.F.	G		600	.093		12	4.50	2.49	18.99
1-1/2" x 3/16", up to 300 S.F.	G		400	.140		15.55	6.75	3.74	26.04
Over 300 S.F.	G		600	.093		14.15	4.50	2.49	21.14
1-3/4" x 3/16", up to 300 S.F.	G		400	.140		20.50	6.75	3.74	30.99
Over 300 S.F.	G		600	.093		18.65	4.50	2.49	25.64
2-1/4" x 3/16", up to 300 S.F.	G		300	.187		25.50	9	4.99	39.49
Over 300 S.F.	G		450	.124		23	6	3.33	32.33
Cross bars @ 2" O.C., 3/4" x 1/8", up to 300 S.F.	G		500	.112		13.65	5.40	2.99	22.04
Over 300 S.F.	G		750	.075		11.35	3.60	2	16.95
1-1/4" x 3/16", up to 300 S.F.	G		400	.140		17.85	6.75	3.74	28.34
Over 300 S.F.	G		600	.093		14.85	4.50	2.49	21.84
1-1/2" x 3/16", up to 300 S.F.	G		400	.140		20	6.75	3.74	30.49
Over 300 S.F.	G		600	.093		16.75	4.50	2.49	23.74
1-3/4" x 3/16", up to 300 S.F.	G		400	.140		30.50	6.75	3.74	40.99
Over 300 S.F.	G		600	.093		25	4.50	2.49	31.99
2-1/4" x 3/16", up to 300 S.F.	G		300	.187		29.50	9	4.99	43.49
Over 300 S.F.	G	↓	450	.124	↓	24.50	6	3.33	33.83
For galvanized grating, odd					25%				
For straight cuts, odd				L.F.	5.60			5.60	6.15
For curved cuts, odd					7.10			7.10	7.80
For straight bonding, odd	G				6			6	6.60
For curved bonding, odd	G				7.90			7.90	8.70
For checkered plate nosings, odd	G				6.95			6.95	7.65
For straight toe or kick plate, odd	G				12.45			12.45	13.70
For curved toe or kick plate, odd	G				14.10			14.10	15.50
For abrasive nosings, odd	G			↓	9.25			9.25	10.20
For stair treads, see Section 05 55 13.50									
For safety serrated surface, minimum, odd					15%				
Maximum, odd					25%				
Stainless steel gratings, close spaced, 1" x 1/8" bars, up to 300 S.F.	G	E-4	450	.071	S.F.	106	3.54	.27	109.81
Standard spacing, 3/4" x 1/8" bars	G		500	.064		75.50	3.19	.24	78.93
1-1/4" x 3/16" bars	G		400	.080		116	3.99	.30	120.29
Expanded steel grating, at ground, 3.0# per S.F.	G	↓	900	.036	↓	7.30	1.77	.14	9.21

05 53 Metal Gratings

05 53 13 – Bar Gratings

05 53 13.70 Floor Grating, Steel			Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O
								Labor	Equipment		
2500	3.14# per S.F.	[G]	E-4	900	.036	S.F.	7.85	1.77	.14	9.76	1
2600	4.0# per S.F.	[G]		850	.038		9.70	1.88	.14	11.72	1
2650	4.27# per S.F.	[G]		850	.038		10.40	1.88	.14	12.42	1
2700	5.0# per S.F.	[G]		800	.040		12.35	1.99	.15	14.49	1
2800	6.25# per S.F.	[G]		750	.043		16	2.13	.16	18.29	2
2900	7.0# per S.F.	[G]		700	.046		17.70	2.28	.17	20.15	2
3100	For flattened expanded steel grating, add						8%				
3300	For elevated installation above 15', add							15%			

05 53 16 – Plank Gratings

05 53 16.50 Grating Planks											
GRATING PLANKS, field fabricated from planks											
0010	Aluminum, 9-1/2" wide, 14 ga., 2" rib	[G]	E-4	950	.034	L.F.	28	1.68	.13	29.81	34
0200	Galvanized steel, 9-1/2" wide, 14 ga., 2-1/2" rib	[G]		950	.034		15.15	1.68	.13	16.96	13
0300	4" rib	[G]		950	.034		17.80	1.68	.13	19.61	22
0500	12 gauge, 2-1/2" rib	[G]		950	.034		26	1.68	.13	27.81	31
0600	3" rib	[G]		950	.034		21	1.68	.13	22.81	26
0800	Stainless steel, type 304, 16 ga., 2" rib	[G]		950	.034		41	1.68	.13	42.81	46
0900	Type 316	[G]		950	.034		50.50	1.68	.13	52.31	56

05 53 19 – Floor Grating Frame

05 53 19.30 Grating Frame											
GRATING FRAME, field fabricated											
0010	Aluminum, for gratings 1" to 1-1/2" deep	[G]	1 Sswk	70	.114	L.F.	3.36	5.65		9.01	13
0100	For each corner, add	[G]				Ea.	5.05			5.05	5

05 54 Metal Floor Plates

05 54 13 – Floor Plates

05 54 13.20 Checkered Plates											
CHECKERED PLATES, steel, field fabricated											
0010	Made from recycled materials	[G]									
0015	1/4" & 3/8", 2000 to 5000 S.F., bolted	[G]	E-4	2900	.011	Lb.	.98	.55	.04	1.57	2
0020	Welded	[G]		4400	.007	"	.93	.36	.03	1.32	1
0300	Pit or trench cover and frame, 1/4" plate, 2' to 3' wide	[G]		100	.320	S.F.	13.75	15.95	1.22	30.92	45
0400	For galvanizing, add	[G]				Lb.	.28			.28	
0500	Platforms, 1/4" plate, no handrails included, rectangular	[G]	E-4	4200	.008		3.20	.38	.03	3.61	4
0600	Circular	[G]	"	2500	.013		4	.64	.05	4.69	5

05 54 13.70 Trench Covers

05 54 13.70 Trench Covers											
TRENCH COVERS, field fabricated											
0010	Cast iron grating with bar stops and angle frame, to 18" wide	[G]	1 Sswk	20	.400	L.F.	268	19.75		287.75	330
0020	Frame only (both sides of trench), 1" grating	[G]		45	.178		1.54	8.75		10.29	17
0100	2" grating	[G]		35	.229		3.70	11.30		15	24
0200	Aluminum, stock units, including frames and										
0210	3/8" plain cover plate, 4" opening	[G]	E-4	205	.156	L.F.	22	7.80	.59	30.39	39
0300	6" opening	[G]		185	.173		26.50	8.60	.66	35.76	45
0400	10" opening	[G]		170	.188		36	9.40	.72	46.12	57
0500	16" opening	[G]		155	.206		49.50	10.30	.78	60.58	74
0700	Add per inch for additional widths to 24"	[G]					2.06			2.06	2
0900	For custom fabrication, add						50%				
1100	For 1/4" plain cover plate, deduct						12%				
1500	For cover recessed for tile, 1/4" thick, deduct						12%				
1600	3/8" thick, add						5%				

5 54 Metal Floor Plates

5 54 13 – Floor Plates

5 54 13.70 Trench Covers		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
00	For checkered plate cover, 1/4" thick, deduct				L.F.	12%				
00	3/8" thick, add					2%				
00	For slotted or round holes in cover, 1/4" thick, add					3%				
00	3/8" thick, add					4%				
00	For abrasive cover, add					12%				

5 55 Metal Stair Treads and Nosings

5 55 13 – Metal Stair Treads

5 55 13.50 Stair Treads

STAIR TREADS										
20	Aluminum grating, 3' long, 1-1/2" x 3/16" rect. bars, 6" wide	G	1 Sswk	24	.333	Ea.	62	16.45	78.45	97.50
00	12" wide	G		22	.364		91.50	17.95	109.45	133
00	1-1/2" x 3/16" I-bars, 6" wide	G		24	.333		52	16.45	68.45	87
00	12" wide	G		22	.364		84	17.95	101.95	124
00	For abrasive nosings, add	G					16.30		16.30	17.90
00	For narrow mesh, add						60%			
00	Stair treads, not incl. stringers, see also Section 03 15 05.85									
00	Cast aluminum, abrasive, 3' long x 12" wide, 5/16" thick	G	1 Sswk	15	.533	Ea.	138	26.50	164.50	198
00	3/8" thick	G		15	.533		148	26.50	174.50	209
00	1/2" thick	G		15	.533		160	26.50	186.50	223
00	Cast bronze, abrasive, 3/8" thick	G		8	1		625	49.50	674.50	780
00	1/2" thick	G		8	1		820	49.50	869.50	990
00	Cast iron, abrasive, 3' long x 12" wide, 3/8" thick	G		15	.533		120	26.50	146.50	179
00	1/2" thick	G		15	.533		140	26.50	166.50	201
00	Steel grating, painted, 3' long, 1-1/4" x 3/16" bars, 6" wide	G		20	.400		50.50	19.75	70.25	91
10	12" wide	G		18	.444		58.50	22	80.50	104
00	Add for abrasive nosing, 3' long, painted	G					15.80		15.80	17.35
00	Galvanized	G					21		21	23
00	Painting 3' treads, in shop, nonstandard paint						2.78		2.78	3.06
00	Added coats, standard paint						1.19		1.19	1.31
00	Expanded steel, 2-1/2" deep, 9" x 3' long, 18 gauge	G	1 Sswk	20	.400		28	19.75	47.75	66
00	14 gauge	G	"	20	.400		34	19.75	53.75	73

5 56 Metal Castings

5 56 13 – Metal Construction Castings

5 56 13.50 Construction Castings

CONSTRUCTION CASTINGS										
00	Monhole covers and frames, see Section 33 44 13.13									
20	Column bases, cast iron, 16" x 16", approx. 65 lb.	G	E-4	46	.696	Ea.	145	34.50	182.14	225
00	32" x 32", approx. 256 lb.	G	"	23	1.391		540	69.50	614.80	725
00	Cast aluminum for wood columns, 8" x 8"	G	1 Corp	32	.250		43	11.05	54.05	64.50
00	12" x 12"	G	"	32	.250		93.50	11.05	104.55	120
00	Miscellaneous C.I. castings, light sections, less than 150 lb.	G	E-4	3200	.010	Lb.	2.24	.50	2.78	3.39
00	Heavy sections, more than 150 lb.	G		4200	.008		1.09	.38	1.50	1.91
00	Special low volume items	G		3200	.010		3.89	.50	4.43	5.20
00	For ductile iron, add						100%			

05 58 Formed Metal Fabrications

05 58 21 - Formed Chain

05 58 21.05 Alloy Steel Chain		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Ind. Cost
							Labor	Equipment		
0010	ALLOY STEEL CHAIN, Grade 80, for lifting									
0015	Self-colored, cut lengths, 1/4"	G	E-17	4	4	C.L.F.	700	201	901	1,125
0020	3/8"	G		2	8		885	405	1,290	1,700
0030	1/2"	G		1.20	13.333		1,425	670	2,095	2,750
0040	5/8"	G		.72	22.222		2,150	1,125	3,275	4,375
0050	3/4"	G	E-18	.48	83.333		2,925	4,100	1,975	12,500
0060	7/8"	G		.40	100		4,925	4,925	2,375	16,600
0070	1"	G		.35	114		6,675	5,625	2,725	20,100
0080	1-1/4"	G		.24	166		13,600	8,200	3,950	25,750
0110	Hook, Grade 80, Clevis slip, 1/4"	G				Ea.	34.50		34.50	38
0120	3/8"	G					45		45	49
0130	1/2"	G					71.50		71.50	79
0140	5/8"	G					89.50		89.50	98
0150	3/4"	G					149		149	164
0160	Hook, Grade 80, eye/sling w/hammerlock coupling, 15 Ton	G					320		320	355
0170	22 Ton	G					870		870	955
0180	37 Ton	G					2,400		2,400	2,650

05 58 23 - Formed Metal Guards

05 58 23.90 Window Guards

0010	WINDOW GUARDS, shop fabricated									
0015	Expanded metal, steel angle frame, permanent	G	E-4	350	.091	S.F.	21.50	4.56	.35	26.41
0025	Steel bars, 1/2" x 1/2", spaced 5" O.C.	G	"	290	.110	"	15	5.50	.42	20.92
0030	Hinge mounted, add					Opng.	43.50			43.50
0040	Removable type, add	G				"	27.50			27.50
0050	For galvanized guards, add					S.F.	35%			
0070	For pivoted or projected type, add						105%	40%		
0100	Mild steel, stock units, economy	G	E-4	405	.079		5.90	3.94	.30	10.14
0200	Deluxe	G		405	.079		12	3.94	.30	16.24
0400	Woven wire, stock units, 3/8" channel frame, 3' x 5' opening	G		40	.800	Opng.	160	40	3.04	203.04
0500	4' x 6' opening	G		38	.842		255	42	3.20	300.20
0800	Basket guards for above, add	G					220			220
1000	Swinging guards for above, add	G					75			75

05 58 25 - Formed Lamp Posts

05 58 25.40 Lamp Posts

0010	LAMP POSTS									
0020	Aluminum, 7' high, stock units, post only	G	1 Corp	16	.500	Ea.	67.50	22		89.50
0100	Mild steel, plain	G	"	16	.500	"	65	22		87

05 71 Decorative Metal Stairs

05 71 13 - Fabricated Metal Spiral Stairs

05 71 13.50 Spiral Stairs

0010	SPIRAL STAIRS									
1805	Shop fabricated, custom ordered									
1810	Aluminum, 5'-0" diameter, plain units	G	E-4	45	.711	Riser	560	35.50	2.70	598.20
1820	Fancy units	G		45	.711		1,050	35.50	2.70	1,088.20
1900	Cast iron, 4'-0" diameter, plain units	G		45	.711		505	35.50	2.70	543.20
1920	Fancy Units	G		25	1.280		690	64	4.86	758.86
2000	Steel, industrial checkered plate, 4' diameter	G		45	.711		505	35.50	2.70	543.20
2200	Stock units, 6'-0" diameter	G		40	.800		610	40	3.04	653.04
3100	Spiral stair kits, 12 stacking risers to fit exact floor height									

71 Decorative Metal Stairs

71 13 – Fabricated Metal Spiral Stairs

1 13.50 Spiral Stairs		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total	Total Ind O&P
							Labor	Equipment			
Steel, flat metal treads, primed, 3'-6" diameter		2 Carp	1.60	10	Flight	1,250	440			1,690	2,025
4'-0" diameter			1.45	11.034		1,425	485			1,910	2,325
4'-6" diameter			1.35	11.852		1,575	525			2,100	2,525
5'-0" diameter			1.25	12.800		1,700	565			2,265	2,750
Galvanized, 3'-6" diameter			1.60	10		1,475	440			1,915	2,300
4'-0" diameter			1.45	11.034		1,700	485			2,185	2,625
4'-6" diameter			1.35	11.852		1,900	525			2,425	2,875
5'-0" diameter			1.25	12.800		2,050	565			2,615	3,125
Checkered plate tread, primed, 3'-6" diameter			1.45	11.034		1,475	485			1,960	2,375
4'-0" diameter			1.35	11.852		1,675	525			2,200	2,625
4'-6" diameter			1.25	12.800		1,825	565			2,390	2,875
5'-0" diameter			1.15	13.913		2,000	615			2,615	3,125
Galvanized, 3'-6" diameter			1.45	11.034		1,775	485			2,260	2,700
4'-0" diameter			1.35	11.852		2,000	525			2,525	3,000
4'-6" diameter			1.25	12.800		2,175	565			2,740	3,275
5'-0" diameter			1.15	13.913		2,375	615			2,990	3,575
Red oak covers on flat metal treads, 3'-6" diameter			1.35	11.852		2,550	525			3,075	3,625
4'-0" diameter			1.25	12.800		2,825	565			3,390	3,975
4'-6" diameter			1.15	13.913		3,025	615			3,640	4,300
5'-0" diameter			1.05	15.238		3,325	670			3,995	4,675

73 Decorative Metal Railings

73 16 – Wire Rope Decorative Metal Railings

3 16.10 Cable Railings

CABLE RAILINGS , with 316 stainless steel 1 x 19 cable, 3/16" diameter											
Made from recycled materials											
1-3/4" diameter stainless steel posts x 42" high, cables 4" OC		2 Sswk	25	.640	L.F.	37	31.50			68.50	97

73 23 – Ornamental Railings

3 23.50 Railings, Ornamental

RAILINGS, ORNAMENTAL , 3'-6" high, posts @ 6' O.C.											
Brnze or stainless, hand forged, plain		2 Sswk	24	.667	L.F.	101	33			134	171
Fancy			18	.889		174	44			218	271
Aluminum, panelized, plain			24	.667		16.50	33			49.50	77
Fancy			18	.889		33	44			77	115
Wrought iron, hand forged, plain			24	.667		67.50	33			100.50	134
Fancy			18	.889		125	44			169	216
Steel, panelized, plain			24	.667		16.90	33			49.90	77.50
Fancy			18	.889		25	44			69	106
Composite metal/wood/glass, plain			18	.889		112	44			156	202
Fancy			12	1.333		224	66			290	365

05 75 Decorative Formed Metal

05 75 13 - Columns

05 75 13.10 Aluminum Columns					Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs			Total	Tc Ind
ALUMINUM COLUMNS										Labor	Equipment			
0010														
0015	Made from recycled materials				G									
0020	Aluminum, extruded, stock units, no cap or base, 6" diameter				G	E-4	240	.133	L.F.	10.65	6.65	.51	17.81	
0100	8" diameter				G		170	.188		14.10	9.40	.72	24.22	
0200	10" diameter				G		150	.213		19.20	10.65	.81	30.66	
0300	12" diameter				G		140	.229		33.50	11.40	.87	45.77	
0400	15" diameter				G		120	.267		48	13.30	1.01	62.31	
0410	Caps and bases, plain, 6" diameter				G				Set	22.50			22.50	
0420	8" diameter				G					28			28	
0430	10" diameter				G					39			39	
0440	12" diameter				G					55.50			55.50	
0450	15" diameter				G					110			110	
0460	Caps, ornamental, plain				G					340			340	3
0470	Fancy				G					1,675			1,675	1,8
0500	For square columns, add to column prices above								L.F.	50%				
0700	Residential, flat, 8' high, plain				G	E-4	20	1.600	Ea.	97.50	80	6.10	183.60	2
0720	Fancy				G		20	1.600		190	80	6.10	276.10	3
0740	Corner type, plain				G		20	1.600		168	80	6.10	254.10	3
0760	Fancy				G		20	1.600		330	80	6.10	416.10	5
05 75 13.20 Columns, Ornamental														
0010	COLUMNS, ORNAMENTAL, shop fabricated													
6400	Mild steel, flat, 9" wide, stock units, painted, plain				G	E-4	160	.200	V.L.F.	9.15	9.95	.76	19.86	
6450	Fancy				G		160	.200		17.75	9.95	.76	28.46	
6500	Corner columns, painted, plain				G		160	.200		15.75	9.95	.76	26.46	
6550	Fancy				G		160	.200		31	9.95	.76	41.71	

Estimating Tips

05 00 Common Work Subs for Wood, Plastics, and Composites

Common to any wood-framed structure are the accessory connector items such as screws, nails, adhesives, gaskets, connector plates, traps, angles, and hold-downs. For typical wood-framed buildings, such as residential projects, the aggregate total for these items can be significant, especially in areas where seismic loading is a concern. For floor and wall framing, the material cost is based on 10 to 25 lbs. per MBF. Hold-downs, hangers, and other connectors should be taken off by the piece.

Included with material costs are fasteners for a normal installation. RSMeans engineers use manufacturer's recommendations, written specifications, and/or standard construction practice for size and spacing of fasteners. Prices for various fasteners are shown for informational purposes only. Adjustments should be made if unusual fastening conditions exist.

06 10 00 Carpentry

Lumber is a traded commodity and therefore sensitive to supply and demand in the

marketplace. Even in "budgetary" estimating of wood-framed projects, it is advisable to call local suppliers for the latest market pricing.

- Common quantity units for wood-framed projects are "thousand board feet" (MBF). A board foot is a volume of wood, 1" x 1' x 1', or 144 cubic inches. Board-foot quantities are generally calculated using nominal material dimensions—dressed sizes are ignored. Board foot per lineal foot of any stick of lumber can be calculated by dividing the nominal cross-sectional area by 12. As an example, 2,000 lineal feet of 2 x 12 equates to 4 MBF by dividing the nominal area, 2 x 12, by 12, which equals 2, and multiplying by 2,000 to give 4,000 board feet. This simple rule applies to all nominal dimensioned lumber.
- Waste is an issue of concern at the quantity takeoff for any area of construction. Framing lumber is sold in even foot lengths, i.e., 10', 12', 14', 16', and depending on spans, wall heights, and the grade of lumber, waste is inevitable. A rule of thumb for lumber waste is 5%–10% depending on material quality and the complexity of the framing.
- Wood in various forms and shapes is used in many projects, even where the main structural framing is steel, concrete, or masonry. Plywood

as a back-up partition material and 2x boards used as blocking and cant strips around roof edges are two common examples. The estimator should ensure that the costs of all wood materials are included in the final estimate.

06 20 00 Finish Carpentry

- It is necessary to consider the grade of workmanship when estimating labor costs for erecting millwork and interior finish. In practice, there are three grades: premium, custom, and economy. The RSMeans daily output for base and case moldings is in the range of 200 to 250 L.F. per carpenter per day. This is appropriate for most average custom-grade projects. For premium projects, an adjustment to productivity of 25%–50% should be made, depending on the complexity of the job.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

06 05 Common Work Results for Wood, Plastics, and Composite

06 05 05 – Selective Wood and Plastics Demolition

06 05 05.10 Selective Demolition Wood Framing				Daily	Labor-			2012 Base Costs				
				Crew	Output	Hours	Unit	Material	Labor	Equipment	Total	Inc
0010	SELECTIVE DEMOLITION WOOD FRAMING			R024119-10								
0100	Timber connector, nailed, small			1 Clob	96	.083	Eq.		2.92		2.92	
0110	Medium				60	.133			4.68		4.68	
0120	Large				48	.167			5.85		5.85	
0130	Bolted, small				48	.167			5.85		5.85	
0140	Medium				32	.250			8.80		8.80	
0150	Large				24	.333			11.70		11.70	
2958	Beams, 2" x 6"			2 Clob	1100	.015	L.F.		.51		.51	
2960	2" x 8"				825	.019			.68		.68	
2965	2" x 10"				665	.024			.84		.84	
2970	2" x 12"				550	.029			1.02		1.02	
2972	2" x 14"				470	.034			1.19		1.19	
2975	4" x 8"			B-1	413	.058			2.08		2.08	
2980	4" x 10"				330	.073			2.60		2.60	
2985	4" x 12"				275	.087			3.12		3.12	
3000	6" x 8"				275	.087			3.12		3.12	
3040	6" x 10"				220	.109			3.90		3.90	
3080	6" x 12"				185	.130			4.64		4.64	
3120	8" x 12"				140	.171			6.15		6.15	
3160	10" x 12"				110	.218			7.80		7.80	
3162	Alternate pricing method				1.10	21.818	M.B.F.		780		780	1.2
3170	Blocking, in 16" OC wall framing, 2" x 4"			1 Clob	600	.013	L.F.		.47		.47	
3172	2" x 6"				400	.020			.70		.70	
3174	In 24" OC wall framing, 2" x 4"				600	.013			.47		.47	
3176	2" x 6"				400	.020			.70		.70	
3178	Alt method, wood blocking removal from wood framing				.40	20	M.B.F.		700		700	1.0
3179	Wood blocking removal from steel framing				.36	22.222	"		780		780	1.2
3180	Brocing, let in, 1" x 3", studs 16" OC				1050	.008	L.F.		.27		.27	
3181	Studs 24" OC				1080	.007			.26		.26	
3182	1" x 4", studs 16" OC				1050	.008			.27		.27	
3183	Studs 24" OC				1080	.007			.26		.26	
3184	1" x 6", studs 16" OC				1050	.008			.27		.27	
3185	Studs 24" OC				1080	.007			.26		.26	
3186	2" x 3", studs 16" OC				800	.010			.35		.35	
3187	Studs 24" OC				830	.010			.34		.34	
3188	2" x 4", studs 16" OC				800	.010			.35		.35	
3189	Studs 24" OC				830	.010			.34		.34	
3190	2" x 6", studs 16" OC				800	.010			.35		.35	
3191	Studs 24" OC				830	.010			.34		.34	
3192	2" x 8", studs 16" OC				800	.010			.35		.35	
3193	Studs 24" OC				830	.010			.34		.34	
3194	"T" shaped metal brocing, studs at 16" OC				1060	.008			.27		.27	
3195	Studs at 24" OC				1200	.007			.23		.23	
3196	Metal straps, studs at 16" OC				1200	.007			.23		.23	
3197	Studs at 24" OC				1240	.006			.23		.23	
3200	Columns, round, 8' to 14' tall				40	.200	Eq.		7		7	1.0
3202	Dimensional lumber sizes			2 Clob	1.10	14.545	M.B.F.		510		510	780
3250	Blocking, between joists			1 Clob	320	.025	Eq.		.88		.88	
3252	Bridging, metal strap, between joists				320	.025	Pr.		.88		.88	
3254	Wood, between joists				320	.025	"		.88		.88	
3260	Door buck, studs, header & access., 8' high 2" x 4" wall, 3' wide				32	.250	Eq.		8.80		8.80	1.0
3261	4' wide				32	.250			8.80		8.80	1.0
3262	5' wide				32	.250			8.80		8.80	1.0

6 05 Common Work Results for Wood, Plastics, and Composites

6 05 05 – Selective Wood and Plastics Demolition

05 05.10 Selective Demolition Wood Framing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
53	6' wide	1 Clab	32	.250	Eq.		8.80		8.80	13.50
54	8' wide		30	.267			9.35		9.35	14.40
55	10' wide		30	.267			9.35		9.35	14.40
56	12' wide		30	.267			9.35		9.35	14.40
57	2" x 6" wall, 3' wide		32	.250			8.80		8.80	13.50
58	4' wide		32	.250			8.80		8.80	13.50
59	5' wide		32	.250			8.80		8.80	13.50
70	6' wide		32	.250			8.80		8.80	13.50
71	8' wide		30	.267			9.35		9.35	14.40
72	10' wide		30	.267			9.35		9.35	14.40
73	12' wide		30	.267			9.35		9.35	14.40
74	Window buck, studs, header & access, 8' high 2" x 4" wall, 2' wide		24	.333			11.70		11.70	18
75	3' wide		24	.333			11.70		11.70	18
76	4' wide		24	.333			11.70		11.70	18
77	5' wide		24	.333			11.70		11.70	18
78	6' wide		24	.333			11.70		11.70	18
79	7' wide		24	.333			11.70		11.70	18
80	8' wide		22	.364			12.75		12.75	19.65
81	10' wide		22	.364			12.75		12.75	19.65
82	12' wide		22	.364			12.75		12.75	19.65
83	2" x 6" wall, 2' wide		24	.333			11.70		11.70	18
84	3' wide		24	.333			11.70		11.70	18
85	4' wide		24	.333			11.70		11.70	18
86	5' wide		24	.333			11.70		11.70	18
87	6' wide		24	.333			11.70		11.70	18
88	7' wide		24	.333			11.70		11.70	18
89	8' wide		22	.364			12.75		12.75	19.65
90	10' wide		22	.364			12.75		12.75	19.65
91	12' wide		22	.364			12.75		12.75	19.65
00	Fascia boards, 1" x 6"		500	.016	L.F.		.56		.56	.86
40	1" x 8"		450	.018			.62		.62	.96
80	1" x 10"		400	.020			.70		.70	1.08
90	2" x 6"		450	.018			.62		.62	.96
00	2" x 8"		400	.020			.70		.70	1.08
10	2" x 10"		350	.023			.80		.80	1.23
10	Furring, on wood walls or ceiling		4000	.002	S.F.		.07		.07	.11
20	On masonry or concrete walls or ceiling		1200	.007	"		.23		.23	.36
00	Headers over openings, 2 @ 2" x 6"		110	.073	L.F.		2.55		2.55	3.93
340	2 @ 2" x 8"		100	.080			2.81		2.81	4.32
380	2 @ 2" x 10"		90	.089			3.12		3.12	4.80
385	Alternate pricing method		.26	30.651	M.B.F.		1,075		1,075	1,650
720	Joists, 1" x 4"		1250	.006	L.F.		.22		.22	.35
930	1" x 6"		1135	.007			.25		.25	.38
940	1" x 8"		1000	.008			.28		.28	.43
950	1" x 10"		895	.009			.31		.31	.48
960	1" x 12"		765	.010			.37		.37	.56
200	2" x 4"	2 Clab	1000	.016			.56		.56	.86
230	2" x 6"		970	.016			.58		.58	.89
240	2" x 8"		940	.017			.60		.60	.92
250	2" x 10"		910	.018			.62		.62	.95
280	2" x 12"		880	.018			.64		.64	.98
281	2" x 14"		850	.019			.66		.66	1.02
282	Composite joists, 9-1/2"		960	.017			.59		.59	.90

06 05 Common Work Results for Wood, Plastics, and Composite

06 05 05 – Selective Wood and Plastics Demolition

06 05 05.10 Selective Demolition Wood Framing				Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	To Ind
4283	11-7/8"			2 Clab	930	.017	L.F.		.60		.60	
4284	14"				897	.018			.63		.63	
4285	16"				865	.019			.65		.65	
4290	Wood joists, alternate pricing method				1.50	10.667	M.B.F.		375		375	5
4500	Open web joist, 12" deep				500	.032	L.F.		1.12		1.12	
4505	14" deep				475	.034			1.18		1.18	
4510	16" deep				450	.036			1.25		1.25	
4520	18" deep				425	.038			1.32		1.32	
4530	24" deep				400	.040			1.40		1.40	
4550	Ledger strips, 1" x 2"			1 Clab	1200	.007			.23		.23	
4560	1" x 3"				1200	.007			.23		.23	
4570	1" x 4"				1200	.007			.23		.23	
4580	2" x 2"				1100	.007			.26		.26	
4590	2" x 4"				1000	.008			.28		.28	
4600	2" x 6"				1000	.008			.28		.28	
4601	2" x 8 or 2" x 10"				800	.010			.35		.35	
4602	4" x 6"				600	.013			.47		.47	
4604	4" x 8"				450	.018			.62		.62	
5400	Posts, 4" x 4"			2 Clab	800	.020			.70		.70	
5405	4" x 6"				550	.029			1.02		1.02	
5410	4" x 8"				440	.036			1.28		1.28	
5425	4" x 10"				390	.041			1.44		1.44	
5430	4" x 12"				350	.046			1.60		1.60	
5440	6" x 6"				400	.040			1.40		1.40	
5445	6" x 8"				350	.046			1.60		1.60	
5450	6" x 10"				320	.050			1.76		1.76	
5455	6" x 12"				290	.055			1.94		1.94	
5480	8" x 8"				300	.053			1.87		1.87	
5500	10" x 10"				240	.067			2.34		2.34	
5660	Tongue and groove floor planks				2	8	M.B.F.		281		281	43
5682	Rafters, ordinary, 16" OC, 2" x 4"				880	.018	S.F.		.64		.64	
5683	2" x 6"				840	.019			.67		.67	
5684	2" x 8"				820	.020			.68		.68	
5685	2" x 10"				820	.020			.68		.68	
5686	2" x 12"				810	.020			.69		.69	
5687	24" OC, 2" x 4"				1170	.014			.48		.48	
5688	2" x 6"				1117	.014			.50		.50	
5689	2" x 8"				1091	.015			.51		.51	
5690	2" x 10"				1091	.015			.51		.51	
5691	2" x 12"				1077	.015			.52		.52	
5795	Rafters, ordinary, 2" x 4" (alternate method)				862	.019	L.F.		.65		.65	
5800	2" x 6" (alternate method)				850	.019			.66		.66	
5840	2" x 8" (alternate method)				837	.019			.67		.67	
5855	2" x 10" (alternate method)				825	.019			.68		.68	
5865	2" x 12" (alternate method)				812	.020			.69		.69	
5870	Sill plate, 2" x 4"			1 Clab	1170	.007			.24		.24	
5871	2" x 6"				780	.010			.36		.36	
5872	2" x 8"				586	.014			.48		.48	
5873	Alternate pricing method				.78	10.256	M.B.F.		360		360	55
5885	Ridge board, 1" x 4"			2 Clab	900	.018	L.F.		.62		.62	
5886	1" x 6"				875	.018			.64		.64	
5887	1" x 8"				850	.019			.66		.66	
5888	1" x 10"				825	.019			.68		.68	

05 Common Work Results for Wood, Plastics, and Composites

05 05 – Selective Wood and Plastics Demolition

05 05.10 Selective Demolition Wood Framing	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
						Labor	Equipment	Total	
1" x 12"	2 Clab	800	.020	L.F.		.70		.70	1.08
2" x 4"		900	.018			.62		.62	.96
2" x 6"		875	.018			.64		.64	.99
2" x 8"		850	.019			.66		.66	1.02
2" x 10"		825	.019			.68		.68	1.05
2" x 12"		800	.020			.70		.70	1.08
Rafter tie, 1" x 4"		1250	.013			.45		.45	.69
1" x 6"		1135	.014			.49		.49	.76
2" x 4"		1000	.016			.56		.56	.86
2" x 6"		970	.016			.58		.58	.89
Sleepers, on concrete, 1" x 2"	1 Clab	4700	.002			.06		.06	.09
1" x 3"		4000	.002			.07		.07	.11
2" x 4"		3000	.003			.09		.09	.14
2" x 6"		2600	.003			.11		.11	.17
Sheathing from roof, 5/16"	2 Clab	1600	.010	S.F.		.35		.35	.54
3/8"		1525	.010			.37		.37	.57
1/2"		1400	.011			.40		.40	.62
5/8"		1300	.012			.43		.43	.66
3/4"		1200	.013			.47		.47	.72
Board sheathing from roof		1400	.011			.40		.40	.62
Sheathing, from walls, 1/4"		1200	.013			.47		.47	.72
5/16"		1175	.014			.48		.48	.74
3/8"		1150	.014			.49		.49	.75
1/2"		1125	.014			.50		.50	.77
5/8"		1100	.015			.51		.51	.79
3/4"		1075	.015			.52		.52	.80
Board sheathing from walls		1500	.011			.37		.37	.58
Subfloor, with boards		1050	.015			.53		.53	.82
Plywood, 1/2" thick		768	.021			.73		.73	1.12
5/8" thick		760	.021			.74		.74	1.14
3/4" thick		750	.021			.75		.75	1.15
1-1/8" thick		720	.022			.78		.78	1.20
Underlayment, particle board, 3/8" thick	1 Clab	780	.010			.36		.36	.55
1/2" thick		768	.010			.37		.37	.56
5/8" thick		760	.011			.37		.37	.57
3/4" thick		750	.011			.37		.37	.58
Stairs and stringers, minimum	2 Clab	40	.400	Riser		14.05		14.05	21.50
Maximum		26	.615	"		21.50		21.50	33
Components, tread	1 Clab	110	.073	Ea.		2.55		2.55	3.93
Riser		80	.100	"		3.51		3.51	5.40
Stringer, 2" x 10"		260	.031	L.F.		1.08		1.08	1.66
2" x 12"		260	.031			1.08		1.08	1.66
3" x 10"		250	.032			1.12		1.12	1.73
3" x 12"		250	.032			1.12		1.12	1.73
Wood studs, 2" x 3"	2 Clab	3076	.005			.18		.18	.28
2" x 4"		2000	.008			.28		.28	.43
2" x 6"		1600	.010			.35		.35	.54
Wall framing, including studs, plates and blocking, 2" x 4"	1 Clab	600	.013	S.F.		.47		.47	.72
2" x 6"		480	.017	"		.59		.59	.90
Headers, 2" x 4"		1125	.007	L.F.		.25		.25	.38
2" x 6"		1125	.007			.25		.25	.38
2" x 8"		1050	.008			.27		.27	.41
2" x 10"		1050	.008			.27		.27	.41

06 05 Common Work Results for Wood, Plastics, and Composites

06 05 05 – Selective Wood and Plastics Demolition

06 05 05.10 Selective Demolition Wood Framing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. CM
							Labor	Equipment		
6770	2" x 12"	1 Clab	1000	.008	L.F.		.28		.28	
6780	4" x 10"		525	.015			.53		.53	
6785	4" x 12"		500	.016			.56		.56	
6790	6" x 8"		560	.014			.50		.50	
6795	6" x 10"		525	.015			.53		.53	
6797	6" x 12"		500	.016			.56		.56	
8000	Soffit, T & G wood		520	.015	S.F.		.54		.54	
8010	Hardboard, vinyl or aluminum		640	.013			.44		.44	
8030	Plywood	2 Carp	315	.051			2.24		2.24	
9500	See Section 02 41 19.23 for rubbish handling									

06 05 05.20 Selective Demolition Millwork and Trim

06 05 05.20 SELECTIVE DEMOLITION MILLWORK AND TRIM		R024119-10								
		Crew	Daily Output	Labor-Hours	Unit	Material	Labor	Equipment	Total	Total Incl. CM
1000	Cabinets, wood, base cabinets, per L.F.	2 Clab	80	.200	L.F.		7		7	
1020	Wall cabinets, per L.F.	"	80	.200	"		7		7	
1060	Remove and reset, base cabinets	2 Carp	18	.889	Ea.		39		39	
1070	Wall cabinets	"	20	.800	"		35.50		35.50	
1100	Steel, painted, base cabinets	2 Clab	60	.267	L.F.		9.35		9.35	
1120	Wall cabinets		60	.267	"		9.35		9.35	
1200	Casework, large area		320	.050	S.F.		1.76		1.76	
1220	Selective		200	.080	"		2.81		2.81	
1500	Counter top, minimum		200	.080	L.F.		2.81		2.81	
1510	Maximum		120	.133			4.68		4.68	
1550	Remove and reset, minimum	2 Carp	50	.320			14.10		14.10	
1560	Maximum	"	40	.400			17.65		17.65	
2000	Paneling, 4' x 8' sheets	2 Clab	2000	.008	S.F.		.28		.28	
2100	Boards, 1" x 4"		700	.023			.80		.80	
2120	1" x 6"		750	.021			.75		.75	
2140	1" x 8"		800	.020			.70		.70	
3000	Trim, baseboard, to 6" wide		1200	.013	L.F.		.47		.47	
3040	Greater than 6" and up to 12" wide		1000	.016			.56		.56	
3080	Remove and reset, minimum	2 Carp	400	.040			1.76		1.76	
3090	Maximum	"	300	.053			2.35		2.35	
3100	Ceiling trim	2 Clab	1000	.016			.56		.56	
3120	Chair rail		1200	.013			.47		.47	
3140	Railings with balusters		240	.067			2.34		2.34	
3160	Wainscoting		700	.023	S.F.		.80		.80	

06 05 23 – Wood, Plastic, and Composite Fastenings

06 05 23.10 Nails

06 05 23.10 NAILS, material only, based upon 50# box purchase										
0020	Copper nails, plain				Lb.	10			10	
0400	Stainless steel, plain					7.80			7.80	
0500	Box, 3d to 20d, bright					1.25			1.25	
0520	Galvanized					1.77			1.77	
0600	Common, 3d to 60d, plain					1.30			1.30	
0700	Galvanized					1.56			1.56	
0800	Aluminum					5.80			5.80	
1000	Annular or spiral thread, 4d to 60d, plain					1.80			1.80	
1200	Galvanized					3			3	
1400	Drywall nails, plain					3.59			3.59	
1600	Galvanized					2.19			2.19	
1800	Finish nails, 4d to 10d, plain					1.36			1.36	
2000	Galvanized					1.79			1.79	

05 Common Work Results for Wood, Plastics, and Composites

05 23 - Wood, Plastic, and Composite Fastenings

5 23.10 Nails	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
						Labor	Equipment	Total	
Aluminum				Lb.	5.80			5.80	6.40
Flooring nails, hardened steel, 2d to 10d, plain					3.10			3.10	3.41
Galvanized					4			4	4.40
Gypsum lath nails, 1-1/8", 13 ga. flathead, blued					3.59			3.59	3.95
Masonry nails, hardened steel, 3/4" to 3" long, plain					2.20			2.20	2.42
Galvanized					3.75			3.75	4.13
Roofing nails, threaded, galvanized					1.63			1.63	1.79
Aluminum					4.80			4.80	5.30
Compressed lead head, threaded, galvanized					2.47			2.47	2.72
Siding nails, plain shank, galvanized					2			2	2.20
Aluminum					5.80			5.80	6.40
Add to prices above for cement coating					.11			.11	.12
Zinc or tin plating					.14			.14	.15
Vinyl coated sinkers, 8d to 16d					.65			.65	.72

05 23.40 Sheet Metal Screws

SHEET METAL SCREWS									
Steel, standard, #8 x 3/4", plain				C	2.92			2.92	3.21
Galvanized					2.92			2.92	3.21
#10 x 1", plain					4.03			4.03	4.43
Galvanized					4.03			4.03	4.43
With washers, #14 x 1", plain					12.35			12.35	13.60
Galvanized					12.35			12.35	13.60
#14 x 2", plain					16.90			16.90	18.60
Galvanized					16.90			16.90	18.60
Self-drilling, with washers, (pinch point) #8 x 3/4", plain					7.80			7.80	8.55
Galvanized					7.80			7.80	8.55
#10 x 3/4", plain					8.90			8.90	9.80
Galvanized					8.90			8.90	9.80
Stainless steel w/aluminum or neoprene washers, #14 x 1", plain					30			30	33
#14 x 2", plain					40			40	44

05 23.50 Wood Screws

WOOD SCREWS									
#8 x 1" long, steel				C	3.41			3.41	3.75
Brass					10.50			10.50	11.55
#8, 2" long, steel					5.25			5.25	5.80
Brass					19.95			19.95	22
#10, 1" long, steel					3.65			3.65	4.02
Brass					14.15			14.15	15.60
#10, 2" long, steel					5.85			5.85	6.45
Brass					24.50			24.50	27
#10, 3" long, steel					9.80			9.80	10.75
#12, 2" long, steel					8.05			8.05	8.85
Brass					29.50			29.50	32
#12, 3" long, steel					11.65			11.65	12.80
#12, 4" long, steel					21.50			21.50	23.50

05 23.60 Timber Connectors

TIMBER CONNECTORS									
Add up cost of each part for total cost of connection									
Connector plates, steel, with bolts, straight	2 Carp	75	.213	Ea.	28	9.40		37.40	45
Tee, 7 gauge		50	.320		32	14.10		46.10	56.50
F-Strap, 14 gauge, 12" x 8" x 2"		50	.320		32	14.10		46.10	56.50
Anchor plates, 7 ga, 9" x 7"		75	.213		28	9.40		37.40	45

06 05 Common Work Results for Wood, Plastics, and Composites

06 05 23 – Wood, Plastic, and Composite Fastenings

06 05 23.60 Timber Connectors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Inc.
							Labor	Equipment		
0200	Bolts, machine, sq. hd. with nut & washer, 1/2" diameter, 4" long	1 Corp	140	.057	Ea.	.74	2.52		3.26	
0300	7-1/2" long		130	.062		1.34	2.71		4.05	
0500	3/4" diameter, 7-1/2" long		130	.062		3.12	2.71		5.83	
0610	Machine bolts, w/nut, washer, 3/4" diam., 15" L, HD's & beam hangers		95	.084		5.80	3.71		9.51	
0800	Drilling bolt holes in timber, 1/2" diameter		450	.018	Inch		.78		.78	
0900	1" diameter		350	.023	"		1.01		1.01	
1100	Framing anchor, angle, 3" x 3" x 1-1/2", 12 ga		175	.046	Ea.	2.40	2.02		4.42	
1150	Framing anchors, 18 gauge, 4-1/2" x 2-3/4"		175	.046		2.40	2.02		4.42	
1160	Framing anchors, 18 gauge, 4-1/2" x 3"		175	.046		2.40	2.02		4.42	
1170	Clip anchors plates, 18 gauge, 12" x 1-1/8"		175	.046		2.40	2.02		4.42	
1250	Holdowns, 3 gauge base, 10 gauge body		8	1		23	44		67	
1260	Holdowns, 7 gauge 1-1/16" x 3-1/4"		8	1		23	44		67	
1270	Holdowns, 7 gauge 1-3/8" x 3-1/8"		8	1		23	44		67	
1275	Holdowns, 12 gauge 8" x 2-1/2"		8	1		23	44		67	
1300	Joist and beam hangers, 18 ga. galv., for 2" x 4" joist		175	.046		.67	2.02		2.69	
1400	2" x 6" to 2" x 10" joist		165	.048		1.28	2.14		3.42	
1600	16 ga. galv., 3" x 6" to 3" x 10" joist		160	.050		2.72	2.21		4.93	
1700	3" x 10" to 3" x 14" joist		160	.050		4.52	2.21		6.73	
1800	4" x 6" to 4" x 10" joist		155	.052		2.82	2.28		5.10	
1900	4" x 10" to 4" x 14" joist		155	.052		4.62	2.28		6.90	
2000	Two-2" x 6" to two-2" x 10" joists		150	.053		3.85	2.35		6.20	
2100	Two-2" x 10" to two-2" x 14" joists		150	.053		4.30	2.35		6.65	
2300	3/16" thick, 6" x 8" joist		145	.055		59.50	2.43		61.93	
2400	6" x 10" joist		140	.057		62	2.52		64.52	
2500	6" x 12" joist		135	.059		64.50	2.61		67.11	
2700	1/4" thick, 6" x 14" joist		130	.062		67.50	2.71		70.21	
2900	Plywood clips, extruded aluminum H clip, for 3/4" panels					.22			.22	
3000	Galvanized 18 ga. back-up clip					.17			.17	
3200	Past froming, 16 ga. galv. for 4" x 4" base, 2 piece	1 Corp	130	.062		15.05	2.71		17.76	
3300	Cop		130	.062		21	2.71		23.71	
3500	Rafter anchors, 18 ga. galv., 1-1/2" wide, 5-1/4" long		145	.055		.45	2.43		2.88	
3600	10-3/4" long		145	.055		1.34	2.43		3.77	
3800	Shear plates, 2-5/8" diameter		120	.067		2.19	2.94		5.13	
3900	4" diameter		115	.070		5.20	3.07		8.27	
4000	Sill anchors, embedded in concrete or block, 25-1/2" long		115	.070		11.65	3.07		14.72	
4100	Spike grids, 3" x 6"		120	.067		.88	2.94		3.82	
4400	Split rings, 2-1/2" diameter		120	.067		1.80	2.94		4.74	
4500	4" diameter		110	.073		2.73	3.21		5.94	
4550	Tie plate, 20 gauge, 7" x 3 1/8"		110	.073		2.73	3.21		5.94	
4560	Tie plate, 20 gauge, 5" x 4 1/8"		110	.073		2.73	3.21		5.94	
4575	Twist straps, 18 gauge, 12" x 1 1/4"		110	.073		2.73	3.21		5.94	
4580	Twist straps, 18 gauge, 16" x 1 1/4"		110	.073		2.73	3.21		5.94	
4600	Strap ties, 20 ga., 2-1/16" wide, 12 13/16" long		180	.044		.87	1.96		2.83	
4700	Strap ties, 16 ga., 1-3/8" wide, 12" long		180	.044		.87	1.96		2.83	
4800	21-5/8" x 1-1/4"		160	.050		2.72	2.21		4.93	
5000	Toothed rings, 2-5/8" or 4" diameter		90	.089		1.63	3.92		5.55	
5200	Truss plates, nailed, 20 gauge, up to 32' span		17	.471	Truss	11.85	21		32.85	
5400	Washers, 2" x 2" x 1/8"				Ea.	.37			.37	
5500	3" x 3" x 3/16"				"	.98			.98	
6000	Angles and gussets, painted									
6012	7 ga., 3-1/4" x 3-1/4" x 2-1/2" long	1 Corp	1.90	4.211	C	1,025	186		1,211	1,400
6014	3-1/4" x 3-1/4" x 5" long		1.90	4.211		1,975	186		2,161	2,450
6016	3-1/4" x 3-1/4" x 7-1/2" long		1.85	4.324		3,750	191		3,941	4,425

05 05 Common Work Results for Wood, Plastics, and Composites

05 23 – Wood, Plastic, and Composite Fastenings

05 23.60 Timber Connectors		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
8	5-3/4" x 5-3/4" x 2-1/2" long	1 Corp	1.85	4.324	C	2,425	191		2,616	2,950
0	5-3/4" x 5-3/4" x 5" long		1.85	4.324		3,850	191		4,041	4,525
2	5-3/4" x 5-3/4" x 7-1/2" long		1.80	4.444		5,675	196		5,871	6,550
4	3 ga., 4-1/4" x 4-1/4" x 3" long		1.85	4.324		2,575	191		2,766	3,125
6	4-1/4" x 4-1/4" x 6" long		1.85	4.324		5,525	191		5,716	6,375
8	4-1/4" x 4-1/4" x 9" long		1.80	4.444		6,200	196		6,396	7,125
0	7-1/4" x 7-1/4" x 3" long		1.80	4.444		4,450	196		4,646	5,175
2	7-1/4" x 7-1/4" x 6" long		1.80	4.444		6,000	196		6,196	6,900
4	7-1/4" x 7-1/4" x 9" long		1.75	4.571		13,400	202		13,602	15,100
6	Gussets									
8	7 ga., 8-1/8" x 8-1/8" x 2-3/4" long	1 Corp	1.80	4.444	C	4,250	196		4,446	4,975
0	3 ga., 9-3/4" x 9-3/4" x 3-1/4" long	"	1.80	4.444	"	5,875	196		6,071	6,775
2	Beam hangers, polymer pointed									
4	Bolted, 3 ga., (W x H x L)									
6	3-1/4" x 9" x 12" top flange	1 Corp	1	8	C	18,000	355		18,355	20,300
8	5-1/4" x 9" x 12" top flange		1	8		18,800	355		19,155	21,200
0	5-1/4" x 11" x 11-3/4" top flange		1	8		21,400	355		21,755	24,000
2	6-7/8" x 9" x 12" top flange		1	8		19,500	355		19,855	21,900
4	6-7/8" x 11" x 13-1/2" top flange		1	8		22,500	355		22,855	25,200
6	8-7/8" x 11" x 15-1/2" top flange		1	8		24,000	355		24,355	26,900
8	Nailed, 3 ga., (W x H x L)									
0	3-1/4" x 10-1/2" x 10" top flange	1 Corp	1.80	4.444	C	18,800	196		18,996	21,000
2	3-1/4" x 10-1/2" x 12" top flange		1.80	4.444		18,800	196		18,996	21,000
4	5-1/4" x 9-1/2" x 10" top flange		1.80	4.444		19,200	196		19,396	21,400
6	5-1/4" x 9-1/2" x 12" top flange		1.80	4.444		19,200	196		19,396	21,400
8	6-7/8" x 8-1/2" x 12" top flange		1.80	4.444		19,700	196		19,896	21,900
0	Saddle hangers, glu-lom (W x H x L)									
2	3-1/4" x 10-1/2" x 5-1/4" x 6" saddle	1 Corp	.50	16	C	14,100	705		14,805	16,600
4	3-1/4" x 10-1/2" x 6-7/8" x 6" saddle		.50	16		14,800	705		15,505	17,400
6	3-1/4" x 10-1/2" x 8-7/8" x 6" saddle		.50	16		15,600	705		16,305	18,200
8	3-1/4" x 19-1/2" x 5-1/4" x 10-1/8" saddle		.40	20		14,100	880		14,980	16,900
0	3-1/4" x 19-1/2" x 6-7/8" x 10-1/8" saddle		.40	20		14,800	880		15,680	17,700
2	3-1/4" x 19-1/2" x 8-7/8" x 10-1/8" saddle		.40	20		15,600	880		16,480	18,500
4	5-1/4" x 9-1/2" x 5-1/4" x 12" saddle		.50	16		16,800	705		17,505	19,600
6	5-1/4" x 9-1/2" x 6-7/8" x 9" saddle		.50	16		18,400	705		19,105	21,300
8	5-1/4" x 10-1/2" x spec x 12" saddle		.50	16		20,000	705		20,705	23,100
0	5-1/4" x 18" x 5-1/4" x 12-1/8" saddle		.40	20		16,800	880		17,680	19,900
2	5-1/4" x 18" x 6-7/8" x 12-1/8" saddle		.40	20		18,400	880		19,280	21,600
4	5-1/4" x 18" x spec x 12-1/8" saddle		.40	20		20,000	880		20,880	23,400
6	6-7/8" x 8-1/2" x 6-7/8" x 12" saddle		.50	16		20,100	705		20,805	23,200
8	6-7/8" x 8-1/2" x 8-7/8" x 12" saddle		.50	16		20,800	705		21,505	23,900
0	6-7/8" x 10-1/2" x spec x 12" saddle		.50	16		20,100	705		20,805	23,200
2	6-7/8" x 18" x 6-7/8" x 13-3/4" saddle		.40	20		20,100	880		20,980	23,500
4	6-7/8" x 18" x 8-7/8" x 13-3/4" saddle		.40	20		20,800	880		21,680	24,200
6	6-7/8" x 18" x spec x 13-3/4" saddle		.40	20		22,400	880		23,280	26,000
8	8-7/8" x 18" x spec x 15-3/4" saddle		.40	20		35,000	880		35,880	39,900
0	Beam and purlin hangers, galvanized, 12 ga.									
2	Purlin or joist size, 3" x 8"	1 Corp	1.70	4.706	C	1,875	208		2,083	2,375
4	3" x 10"		1.70	4.706		2,000	208		2,208	2,525
6	3" x 12"		1.65	4.848		2,300	214		2,514	2,850
8	3" x 14"		1.65	4.848		2,450	214		2,664	3,025
0	3" x 16"		1.65	4.848		2,600	214		2,814	3,175
2	4" x 8"		1.65	4.848		1,875	214		2,089	2,375

06 05 Common Work Results for Wood, Plastics, and Composites

06 05 23 – Wood, Plastic, and Composite Fastenings

06 05 23.60 Timber Connectors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind. O&M
							Labor	Equipment		
6214	4" x 10"	1 Carp	1.65	4.848	C	2,025	214		2,239	2.3
6216	4" x 12"		1.60	5		2,400	221		2,621	2.7
6218	4" x 14"		1.60	5		2,550	221		2,771	3.0
6220	4" x 16"		1.60	5		2,675	221		2,896	3.2
6222	6" x 8"		1.60	5		2,400	221		2,621	3.0
6224	6" x 10"		1.55	5.161		2,450	228		2,678	3.0
6226	6" x 12"		1.55	5.161		4,200	228		4,428	4.5
6228	6" x 14"		1.50	5.333		4,450	235		4,685	5.2
6230	6" x 16"		1.50	5.333		4,725	235		4,960	5.5
6250	Beam seats									
6252	Beam size, 5-1/4" wide									
6254	5" x 7" x 1/4"	1 Carp	1.80	4.444	C	7,100	196		7,296	8.1
6256	6" x 7" x 3/8"		1.80	4.444		7,950	196		8,146	9.0
6258	7" x 7" x 3/8"		1.80	4.444		8,500	196		8,696	9.6
6260	8" x 7" x 3/8"		1.80	4.444		10,000	196		10,196	11.3
6262	Beam size, 6-7/8" wide									
6264	5" x 9" x 1/4"	1 Carp	1.80	4.444	C	8,475	196		8,671	9.6
6266	6" x 9" x 3/8"		1.80	4.444		11,100	196		11,296	12.5
6268	7" x 9" x 3/8"		1.80	4.444		11,200	196		11,396	12.6
6270	8" x 9" x 3/8"		1.80	4.444		13,200	196		13,396	14.4
6272	Special beams, over 6-7/8" wide									
6274	5" x 10" x 3/8"	1 Carp	1.80	4.444	C	11,500	196		11,696	12.9
6276	6" x 10" x 3/8"		1.80	4.444		13,400	196		13,596	15.0
6278	7" x 10" x 3/8"		1.80	4.444		14,000	196		14,196	15.7
6280	8" x 10" x 3/8"		1.75	4.571		15,000	202		15,202	16.8
6282	5-1/4" x 12" x 5/16"		1.75	4.571		11,600	202		11,802	13.1
6284	6-1/2" x 12" x 3/8"		1.75	4.571		19,200	202		19,402	21.5
6286	5-1/4" x 16" x 5/16"		1.70	4.706		17,100	208		17,308	19.1
6288	6-1/2" x 16" x 3/8"		1.70	4.706		22,300	208		22,508	24.8
6290	5-1/4" x 20" x 5/16"		1.70	4.706		20,100	208		20,308	22.4
6292	6-1/2" x 20" x 3/8"		1.65	4.848		26,200	214		26,414	29.1
6300	Column bases									
6302	4 x 4, 16 ga.	1 Carp	1.80	4.444	C	715	196		911	1.0
6306	7 ga.		1.80	4.444		2,625	196		2,821	3.1
6308	4 x 6, 16 ga.		1.80	4.444		1,675	196		1,871	2.1
6312	7 ga.		1.80	4.444		2,725	196		2,921	3.3
6314	6 x 6, 16 ga.		1.75	4.571		1,900	202		2,102	2.3
6318	7 ga.		1.75	4.571		3,725	202		3,927	4.4
6320	6 x 8, 7 ga.		1.70	4.706		2,900	208		3,108	3.5
6322	6 x 10, 7 ga.		1.70	4.706		3,125	208		3,333	3.7
6324	6 x 12, 7 ga.		1.70	4.706		3,375	208		3,583	4.0
6326	8 x 8, 7 ga.		1.65	4.848		5,700	214		5,914	6.6
6330	8 x 10, 7 ga.		1.65	4.848		6,825	214		7,039	7.8
6332	8 x 12, 7 ga.		1.60	5		7,425	221		7,646	8.5
6334	10 x 10, 3 ga.		1.60	5		7,575	221		7,796	8.6
6336	10 x 12, 3 ga.		1.60	5		8,700	221		8,921	9.9
6338	12 x 12, 3 ga.		1.55	5.161		9,450	228		9,678	10.8
6350	Column caps, painted, 3 ga.									
6352	3-1/4" x 3-5/8"	1 Carp	1.80	4.444	C	9,600	196		9,796	10.9
6354	3-1/4" x 5-1/2"		1.80	4.444		9,600	196		9,796	10.9
6356	3-5/8" x 3-5/8"		1.80	4.444		7,850	196		8,046	8.9
6358	3-5/8" x 5-1/2"		1.80	4.444		7,850	196		8,046	8.9
6360	5-1/4" x 5-1/2"		1.75	4.571		10,300	202		10,502	11.6

5 05 Common Work Results for Wood, Plastics, and Composites

05 23 – Wood, Plastic, and Composite Fastenings

05 23.60 Timber Connectors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
	5-1/4" x 7-1/2"	1 Corp	1.75	4.571	C	10,300	202		10,502	11,600
	5-1/2" x 3-5/8"		1.75	4.571		11,100	202		11,302	12,500
	5-1/2" x 5-1/2"		1.75	4.571		11,100	202		11,302	12,500
	5-1/2" x 7-1/2"		1.70	4.706		11,100	208		11,308	12,500
	6-7/8" x 5-1/2"		1.70	4.706		11,600	208		11,808	13,000
	6-7/8" x 6-7/8"		1.70	4.706		11,600	208		11,808	13,000
	6-7/8" x 7-1/2"		1.70	4.706		11,600	208		11,808	13,000
	7-1/2" x 5-1/2"		1.65	4.848		12,100	214		12,314	13,600
	7-1/2" x 7-1/2"		1.65	4.848		12,100	214		12,314	13,600
	8-7/8" x 5-1/2"		1.60	5		12,800	221		13,021	14,300
	8-7/8" x 7-1/2"		1.60	5		12,800	221		13,021	14,300
	9-1/2" x 5-1/2"		1.60	5		17,300	221		17,521	19,300
	Floor tie anchors, polymer point									
	10 go., 3" x 37-1/2"	1 Corp	1.80	4.444	C	4,600	196		4,796	5,350
	3-1/2" x 45-1/2"		1.75	4.571		4,825	202		5,027	5,600
	3 go., 3-1/2" x 56"		1.70	4.706		8,500	208		8,708	9,675
	Girder hangers									
	6" wall thickness, 4" x 6"	1 Corp	1.80	4.444	C	2,575	196		2,771	3,150
	4" x 8"		1.80	4.444		2,875	196		3,071	3,475
	8" wall thickness, 4" x 6"		1.80	4.444		3,000	196		3,196	3,575
	4" x 8"		1.80	4.444		2,975	196		3,171	3,575
	Hinge connections, polymer pointed									
	3/4" thick top plate									
	5-1/4" x 12" w/5" x 5" top	1 Corp	1	8	C	33,000	355		33,355	36,800
	5-1/4" x 15" w/6" x 6" top		.80	10		35,100	440		35,540	39,300
	5-1/4" x 18" w/7" x 7" top		.70	11.429		36,900	505		37,405	41,300
	5-1/4" x 26" w/9" x 9" top		.60	13.333		39,200	590		39,790	44,100
	1" thick top plate									
	6-7/8" x 14" w/5" x 5" top	1 Corp	.80	10	C	40,200	440		40,640	44,900
	6-7/8" x 17" w/6" x 6" top		.80	10		44,600	440		45,040	49,800
	6-7/8" x 21" w/7" x 7" top		.70	11.429		48,700	505		49,205	54,500
	6-7/8" x 31" w/9" x 9" top		.60	13.333		53,500	590		54,090	59,500
	1-1/4" thick top plate									
	8-7/8" x 16" w/5" x 5" top	1 Corp	.60	13.333	C	50,000	590		50,590	56,000
	8-7/8" x 21" w/6" x 6" top		.50	16		55,000	705		55,705	61,500
	8-7/8" x 26" w/7" x 7" top		.40	20		62,500	880		63,380	70,000
	8-7/8" x 39" w/9" x 9" top		.30	26.667		78,000	1,175		79,175	87,500
	Holddowns									
	Embedded along edge									
	26" long, 12 go.	1 Corp	.90	8.889	C	1,250	390		1,640	1,975
	35" long, 12 go.		.85	9.412		1,675	415		2,090	2,475
	35" long, 10 go.		.85	9.412		1,325	415		1,740	2,100
	Embedded away from edge									
	Medium duty, 12 go.									
	18-1/2" long	1 Corp	.95	8.421	C	760	370		1,130	1,400
	23-3/4" long		.90	8.889		885	390		1,275	1,575
	28" long		.85	9.412		905	415		1,320	1,625
	35" long		.85	9.412		1,250	415		1,665	2,025
	Heavy duty, 10 go.									
	28" long	1 Corp	.85	9.412	C	1,625	415		2,040	2,425
	35" long	"	.85	9.412	"	1,775	415		2,190	2,600
	Surface mounted (W x H)									
	2-1/2" x 5-3/4", 7 go.	1 Corp	1	8	C	1,850	355		2,205	2,575

06 05 Common Work Results for Wood, Plastics, and Composites

06 05 23 – Wood, Plastic, and Composite Fastenings

06 05 23.60 Timber Connectors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind
							Labor	Equipment		
6494	2-1/2" x 8", 12 ga.	1 Corp	1	8	C	1,125	355		1,480	1
6496	2-7/8" x 6-3/8", 7 ga.		1	8		4,075	355		4,430	5
6498	2-7/8" x 12-1/2", 3 ga.		1	8		4,175	355		4,530	5
6500	3-3/16" x 9-3/8", 10 ga.		1	8		2,800	355		3,155	3
6502	3-1/2" x 11-5/8", 3 ga.		1	8		5,100	355		5,455	6
6504	3-1/2" x 14-3/4", 3 ga.		1	8		3,400	355		3,755	4
6506	3-1/2" x 16-1/2", 3 ga.		1	8		7,775	355		8,130	9
6508	3-1/2" x 20-1/2", 3 ga.		.90	8.889		7,950	390		8,340	9
6510	3-1/2" x 24-1/2", 3 ga.		.90	8.889		10,100	390		10,490	11
6512	4-1/4" x 20-3/4", 3 ga.		.90	8.889		6,850	390		7,240	8
6520	Joist hangers									
6522	Sloped, field adjustable, 18 ga.									
6524	2" x 6"	1 Corp	1.65	4.848	C	500	214		714	1
6526	2" x 8"		1.65	4.848		900	214		1,114	1
6528	2" x 10" and up		1.65	4.848		1,500	214		1,714	1
6530	3" x 10" and up		1.60	5		1,125	221		1,346	1
6532	4" x 10" and up		1.55	5.161		1,350	228		1,578	1
6536	Skewed 45°, 16 ga.									
6538	2" x 4"	1 Corp	1.75	4.571	C	800	202		1,002	1
6540	2" x 6" or 2" x 8"		1.65	4.848		815	214		1,029	1
6542	2" x 10" or 2" x 12"		1.65	4.848		935	214		1,149	1
6544	2" x 14" or 2" x 16"		1.60	5		1,675	221		1,896	2
6546	(2) 2" x 6" or (2) 2" x 8"		1.60	5		1,500	221		1,721	2
6548	(2) 2" x 10" or (2) 2" x 12"		1.55	5.161		1,625	228		1,853	2
6550	(2) 2" x 14" or (2) 2" x 16"		1.50	5.333		2,550	235		2,785	3
6552	4" x 6" or 4" x 8"		1.60	5		1,250	221		1,471	1
6554	4" x 10" or 4" x 12"		1.55	5.161		1,475	228		1,703	1
6556	4" x 14" or 4" x 16"		1.55	5.161		2,275	228		2,503	2
6560	Skewed 45°, 14 ga.									
6562	(2) 2" x 6" or (2) 2" x 8"	1 Corp	1.60	5	C	1,725	221		1,946	2
6564	(2) 2" x 10" or (2) 2" x 12"		1.55	5.161		2,400	228		2,628	3
6566	(2) 2" x 14" or (2) 2" x 16"		1.50	5.333		3,525	235		3,760	4
6568	4" x 6" or 4" x 8"		1.60	5		2,075	221		2,296	2
6570	4" x 10" or 4" x 12"		1.55	5.161		2,175	228		2,403	2
6572	4" x 14" or 4" x 16"		1.55	5.161		2,925	228		3,153	3
6590	Joist hangers, heavy duty 12 ga., galvanized									
6592	2" x 4"	1 Corp	1.75	4.571	C	1,175	202		1,377	1
6594	2" x 6"		1.65	4.848		1,275	214		1,489	1
6595	2" x 6", 16 gauge		1.65	4.848		1,275	214		1,489	1
6596	2" x 8"		1.65	4.848		1,950	214		2,164	2
6597	2" x 8", 16 gauge		1.65	4.848		1,950	214		2,164	2
6598	2" x 10"		1.65	4.848		2,000	214		2,214	2
6600	2" x 12"		1.65	4.848		2,450	214		2,664	3
6602	2" x 14"		1.65	4.848		2,550	214		2,764	3
6604	2" x 16"		1.65	4.848		2,700	214		2,914	3
6606	3" x 4"		1.65	4.848		1,625	214		1,839	2
6608	3" x 6"		1.65	4.848		2,175	214		2,389	2
6610	3" x 8"		1.65	4.848		2,200	214		2,414	2
6612	3" x 10"		1.60	5		2,550	221		2,771	3
6614	3" x 12"		1.60	5		3,075	221		3,296	3
6616	3" x 14"		1.60	5		3,600	221		3,821	4
6618	3" x 16"		1.60	5		3,950	221		4,171	4
6620	(2) 2" x 4"		1.75	4.571		1,900	202		2,102	2

05 Common Work Results for Wood, Plastics, and Composites

05 23 – Wood, Plastic, and Composite Fastenings

05 23.60 Timber Connectors	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
(2) 2" x 6"	1 Carp	1.60	5	C	2,300	221		2,521	2,875
(2) 2" x 8"		1.60	5		2,350	221		2,571	2,925
(2) 2" x 10"		1.55	5.161		2,550	228		2,778	3,150
(2) 2" x 12"		1.55	5.161		3,250	228		3,478	3,925
(2) 2" x 14"		1.50	5.333		3,275	235		3,510	3,950
(2) 2" x 16"		1.50	5.333		3,300	235		3,535	4,000
4" x 4"		1.65	4.848		1,375	214		1,589	1,850
4" x 6"		1.60	5		1,525	221		1,746	2,025
4" x 8"		1.60	5		1,750	221		1,971	2,275
4" x 10"		1.55	5.161		2,150	228		2,378	2,725
4" x 12"		1.55	5.161		2,300	228		2,528	2,875
4" x 14"		1.55	5.161		2,750	228		2,978	3,375
4" x 16"		1.55	5.161		3,000	228		3,228	3,650
(3) 2" x 10"		1.50	5.333		3,325	235		3,560	4,000
(3) 2" x 12"		1.50	5.333		3,700	235		3,935	4,425
(3) 2" x 14"		1.45	5.517		3,975	243		4,218	4,750
(3) 2" x 16"		1.45	5.517		4,050	243		4,293	4,825
6" x 6"		1.60	5		1,775	221		1,996	2,325
6" x 8"		1.60	5		1,850	221		2,071	2,375
6" x 10"		1.55	5.161		2,200	228		2,428	2,775
6" x 12"		1.55	5.161		2,500	228		2,728	3,100
6" x 14"		1.50	5.333		3,150	235		3,385	3,800
6" x 16"	▼	1.50	5.333	▼	3,700	235		3,935	4,425
Knee braces, galvanized, 12 ga.									
Beam depth, 10" x 15" x 5' long	1 Carp	1.80	4.444	C	4,800	196		4,996	5,600
15" x 22-1/2" x 7' long		1.70	4.706		5,525	208		5,733	6,400
22-1/2" x 28-1/2" x 8' long		1.60	5		5,925	221		6,146	6,875
28-1/2" x 36" x 10' long		1.55	5.161		6,175	228		6,403	7,150
36" x 42" x 12' long	▼	1.50	5.333	▼	6,825	235		7,060	7,850
Mudsill anchors									
2" x 4" or 3" x 4"	1 Carp	115	.070	C	1,225	3.07		1,228.07	1,350
2" x 6" or 3" x 6"		115	.070		1,225	3.07		1,228.07	1,350
Block wall, 13-1/4" long		115	.070		850	3.07		853.07	940
21-1/4" long	▼	115	.070	▼	127	3.07		130.07	144
Past bases, 12 ga. galvanized									
Adjustable, 3-9/16" x 3-9/16"	1 Carp	1.30	6.154	C	980	271		1,251	1,500
3-9/16" x 5-1/2"		1.30	6.154		1,275	271		1,546	1,825
4" x 4"		1.30	6.154		715	271		986	1,200
4" x 6"		1.30	6.154		1,675	271		1,946	2,250
5-1/2" x 5-1/2"		1.30	6.154		2,475	271		2,746	3,150
6" x 6"		1.30	6.154		1,900	271		2,171	2,500
Elevated, 3-9/16" x 3-1/4"		1.30	6.154		1,075	271		1,346	1,600
5-1/2" x 3-5/16"		1.30	6.154		1,525	271		1,796	2,100
5-1/2" x 5"		1.30	6.154		2,275	271		2,546	2,925
Regular, 3-9/16" x 3-3/8"		1.30	6.154		815	271		1,086	1,325
4" x 3-3/8"		1.30	6.154		1,150	271		1,421	1,675
18 gauge, 5-1/4" x 3-1/8"		1.30	6.154		1,200	271		1,471	1,750
5-1/2" x 3-3/8"		1.30	6.154		1,200	271		1,471	1,750
5-1/2" x 5-3/8"		1.30	6.154		1,725	271		1,996	2,325
6" x 3-3/8"		1.30	6.154		2,075	271		2,346	2,700
6" x 5-3/8"	▼	1.30	6.154	▼	2,300	271		2,571	2,975
Past combination cap/bases									
3-9/16" x 3-9/16"	1 Carp	1.20	6.667	C	465	294		759	960

06 05 Common Work Results for Wood, Plastics, and Composite

06 05 23 – Wood, Plastic, and Composite Fastenings

06 05 23.60 Timber Connectors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Tc Incl
							Labor	Equipment		
6766	3-9/16" x 5-1/2"	1 Corp	1.20	6.667	C	1,050	294		1,344	
6768	4" x 4"		1.20	6.667		2,100	294		2,394	
6770	5-1/2" x 5-1/2"		1.20	6.667		1,150	294		1,444	
6772	6" x 6"		1.20	6.667		3,825	294		4,119	
6774	7-1/2" x 7-1/2"		1.20	6.667		4,200	294		4,494	
6776	8" x 8"		1.20	6.667		4,350	294		4,644	
6790	Post-beam connection ceps									
6792	Beam size 3-9/16"									
6794	12 go. post, 4" x 4"	1 Corp	1	8	C	2,650	355		3,005	
6796	4" x 6"		1	8		3,550	355		3,905	
6798	4" x 8"		1	8		5,225	355		5,580	
6800	16 go. post, 4" x 4"		1	8		1,200	355		1,555	
6802	4" x 6"		1	8		2,000	355		2,355	
6804	4" x 8"		1	8		3,375	355		3,730	
6805	18 go. post, 2-7/8" x 3"		1	8		3,375	355		3,730	
6806	Beam size 5-1/2"									
6808	12 go. post, 6" x 4"	1 Corp	1	8	C	3,475	355		3,830	
6810	6" x 6"		1	8		5,475	355		5,830	
6812	6" x 8"		1	8		3,775	355		4,130	
6816	16 go. post, 6" x 4"		1	8		1,875	355		2,230	
6818	6" x 6"		1	8		2,000	355		2,355	
6820	Beam size 7-1/2"									
6822	12 go. post, 8" x 4"	1 Corp	1	8	C	4,800	355		5,155	
6824	8" x 6"		1	8		5,050	355		5,405	
6826	8" x 8"		1	8		7,575	355		7,930	
6840	Purlin anchors, embedded									
6842	Heavy duty, 10 go.									
6844	Straight, 28" long	1 Corp	1.60	5	C	1,325	221		1,546	
6846	35" long		1.50	5.333		1,625	235		1,860	
6848	Twisted, 28" long		1.60	5		1,325	221		1,546	
6850	35" long		1.50	5.333		1,625	235		1,860	
6852	Regular duty, 12 go.									
6854	Straight, 18-1/2" long	1 Corp	1.80	4.444	C	755	196		951	
6856	23-3/4" long		1.70	4.706		950	208		1,158	
6858	29" long		1.60	5		970	221		1,191	
6860	35" long		1.50	5.333		1,325	235		1,560	
6862	Twisted, 18" long		1.80	4.444		755	196		951	
6866	28" long		1.60	5		900	221		1,121	
6868	35" long		1.50	5.333		1,325	235		1,560	
6870	Straight, plastic coated									
6872	23-1/2" long	1 Corp	1.60	5	C	1,850	221		2,071	
6874	26-7/8" long		1.60	5		2,175	221		2,396	
6876	32-1/2" long		1.50	5.333		2,325	235		2,560	
6878	35-7/8" long		1.50	5.333		2,425	235		2,660	
6890	Purlin hangers, pointed									
6892	12 go., 2" x 6"	1 Corp	1.80	4.444	C	1,700	196		1,896	
6894	2" x 8"		1.80	4.444		1,850	196		2,046	
6896	2" x 10"		1.80	4.444		2,000	196		2,196	
6898	2" x 12"		1.75	4.571		2,150	202		2,352	
6900	2" x 14"		1.75	4.571		2,300	202		2,502	
6902	2" x 16"		1.75	4.571		2,450	202		2,652	
6904	3" x 6"		1.70	4.706		1,725	208		1,933	
6906	3" x 8"		1.70	4.706		1,875	208		2,083	

05 Common Work Results for Wood, Plastics, and Composites

05 23 – Wood, Plastic, and Composite Fastenings

05 23.60 Timber Connectors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
8	3" x 10"	1 Corp	1.70	4.706	C	2,000	208		2,208	2,525
0	3" x 12"		1.65	4.848		2,300	214		2,514	2,850
2	3" x 14"		1.65	4.848		2,450	214		2,664	3,025
4	3" x 16"		1.65	4.848		2,600	214		2,814	3,175
6	4" x 6"		1.65	4.848		1,725	214		1,939	2,225
8	4" x 8"		1.65	4.848		1,875	214		2,089	2,375
0	4" x 10"		1.65	4.848		2,025	214		2,239	2,550
2	4" x 12"		1.60	5		2,400	221		2,621	2,975
4	4" x 14"		1.60	5		2,550	221		2,771	3,150
6	4" x 16"		1.60	5		2,675	221		2,896	3,300
8	6" x 6"		1.60	5		2,275	221		2,496	2,850
0	6" x 8"		1.60	5		2,400	221		2,621	3,000
2	6" x 10"		1.55	5.161		2,450	228		2,678	3,050
4	double 2" x 6"		1.70	4.706		1,875	208		2,083	2,375
6	double 2" x 8"		1.70	4.706		2,000	208		2,208	2,525
8	double 2" x 10"		1.70	4.706		2,150	208		2,358	2,700
0	double 2" x 12"		1.65	4.848		2,300	214		2,514	2,850
2	double 2" x 14"		1.65	4.848		2,450	214		2,664	3,025
4	double 2" x 16"		1.65	4.848		2,600	214		2,814	3,175
6	11 go., 4" x 6"		1.65	4.848		3,400	214		3,614	4,075
8	4" x 8"		1.65	4.848		3,675	214		3,889	4,350
0	4" x 10"		1.65	4.848		3,925	214		4,139	4,625
2	6" x 6"		1.60	5		3,450	221		3,671	4,150
4	6" x 8"		1.60	5		3,700	221		3,921	4,425
6	6" x 10"		1.55	5.161		3,950	228		4,178	4,700
8	6" x 12"		1.55	5.161		4,200	228		4,428	4,975
0	6" x 14"		1.55	5.161		4,450	228		4,678	5,250
2	6" x 16"		1.50	5.333		4,725	235		4,960	5,525
4	7 go., 8" x 6"		1.60	5		3,750	221		3,971	4,475
6	8" x 8"		1.60	5		4,000	221		4,221	4,750
8	8" x 10"		1.55	5.161		4,250	228		4,478	5,025
0	8" x 12"		1.55	5.161		4,500	228		4,728	5,300
2	8" x 14"		1.50	5.333		4,750	235		4,985	5,575
4	8" x 16"		1.50	5.333		5,000	235		5,235	5,850
6	Strop connectors, galvanized									
8	12 go., 2-1/16" x 36"	1 Corp	1.55	5.161	C	1,075	228		1,303	1,550
0	2-1/16" x 47"		1.50	5.333		1,500	235		1,735	2,000
2	10 go., 2-1/16" x 72"		1.50	5.333		1,500	235		1,735	2,000
4	7 go., 2-1/16" x 34"		1.55	5.161		2,700	228		2,928	3,325
6	2-1/16" x 45"		1.50	5.333		3,500	235		3,735	4,200
8	3 go., 3" x 32"		1.55	5.161		4,525	228		4,753	5,350
0	3" x 41"		1.55	5.161		4,700	228		4,928	5,525
2	3" x 50"		1.50	5.333		7,175	235		7,410	8,250
4	3" x 59"		1.50	5.333		8,750	235		8,985	9,975
6	3-1/2" x 68"		1.45	5.517		8,875	243		9,118	10,200
8	Tension ties									
0	19-1/8" long, 16 go., 3/4" anchor bolt	1 Corp	1.80	4.444	C	1,250	196		1,446	1,675
2	20" long, 12 go., 1/2" anchor bolt		1.80	4.444		1,625	196		1,821	2,075
4	20" long, 12 go., 3/4" anchor bolt		1.80	4.444		1,625	196		1,821	2,075
6	27-3/4" long, 12 go., 3/4" anchor bolt		1.75	4.571		2,850	202		3,052	3,450
8	Truss connectors, galvanized									
0	Adjustable hanger									
2	18 go., 2" x 6"	1 Corp	1.65	4.848	C	490	214		704	865

06 05 Common Work Results for Wood, Plastics, and Composites

06 05 23 – Wood, Plastic, and Composite Fastenings

06 05 23.60 Timber Connectors

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Ind. O.A.
7056	4" x 6"	1 Corp	1.65	4.848	C	640	214		854	1,025
7058	16 ga., 4" x 10"		1.60	5		940	221		1,161	1,379
7060	(2) 2" x 10"		1.60	5		940	221		1,161	1,379
7062	Connectors to plate									
7064	16 ga., 2" x 4" plate	1 Corp	1.80	4.444	C	480	196		676	800
7066	2" x 6" plate	"	1.80	4.444	"	620	196		816	945
7068	Hip jack connector									
7070	14 ga.	1 Corp	1.50	5.333	C	2,525	235		2,760	3,125

06 05 23.70 Rough Hardware

0010	ROUGH HARDWARE, overage percent of carpentry material									
0020	Minimum				Job	50%				
0200	Maximum					1.50%				
0210	In seismic or hurricane areas, up to					10%				

06 05 23.80 Metal Bracing

0010	METAL BRACING									
0302	Let-in, "I" shaped, 22 ga. galv. steel, studs at 16" O.C.	1 Corp	580	.014	L.F.	.75	.61		1.36	1
0402	Studs at 24" O.C.		600	.013		.75	.59		1.34	1
0502	16 ga. galv. steel straps, studs at 16" O.C.		600	.013		.97	.59		1.56	1
0602	Studs at 24" O.C.		620	.013		.97	.57		1.54	1

06 11 Wood Framing

06 11 10 – Framing with Dimensional, Engineered or Composite Lumber

06 11 10.01 Forest Stewardship Council Certification

0010	FOREST STEWARDSHIP COUNCIL CERTIFICATION									
0020	For Forest Stewardship Council (FSC) cert dimension lumber, odd	G				65%				

06 11 10.02 Blocking

0010	BLOCKING									
2600	Miscellaneous, to wood construction									
2620	2" x 4"	1 Corp	.17	47.059	M.B.F.	490	2,075		2,565	3,730
2625	Pneumatic nailed		.21	38.095		490	1,675		2,165	3,125
2660	2" x 8"		.27	29.630		565	1,300		1,865	2,625
2665	Pneumatic nailed		.33	24.242		565	1,075		1,640	2,275
2720	To steel construction									
2740	2" x 4"	1 Corp	.14	57.143	M.B.F.	490	2,525		3,015	4,425
2780	2" x 8"	"	.21	38.095	"	565	1,675		2,240	3,200

06 11 10.04 Wood Bracing

0010	WOOD BRACING									
0012	Let-in, with 1" x 6" boards, studs @ 16" O.C.	1 Corp	150	.053	L.F.	.72	2.35		3.07	4
0202	Studs @ 24" O.C.	"	230	.035	"	.72	1.53		2.25	3

06 11 10.06 Bridging

0010	BRIDGING									
0012	Wood, for joists 16" O.C., 1" x 3"	1 Corp	130	.062	Pr.	.51	2.71		3.22	4
0017	Pneumatic nailed		170	.047		.51	2.08		2.59	3
0102	2" x 3" bridging		130	.062		.50	2.71		3.21	4
0107	Pneumatic nailed		170	.047		.50	2.08		2.58	3
0302	Steel, galvanized, 18 ga., for 2" x 10" joists at 12" O.C.		130	.062		1.72	2.71		4.43	6
0352	16" O.C.		135	.059		1.85	2.61		4.46	6
0402	24" O.C.		140	.057		1.85	2.52		4.37	5
0602	For 2" x 14" joists at 16" O.C.		130	.062		1.85	2.71		4.56	6
0902	Compression type, 16" O.C., 2" x 8" joists		200	.040		1.78	1.76		3.54	4

11 Wood Framing

11 10 – Framing with Dimensional, Engineered or Composite Lumber

11 10.06 Bridging	Daily Labor-Unit				2012 Bare Costs			Total	Total Ind O&P
	Crew	Output	Hours	Unit	Material	Labor	Equipment		
2" x 12" joists	1 Carp	200	.040	Pt.	1.78	1.76		3.54	4.67

11 10.10 Beam and Girder Framing

BEAM AND GIRDER FRAMING R061110-30									
Single, 2" x 6"	2 Carp	.70	22.857	M.B.F.	535	1,000		1,535	2,125
Pneumatic nailed		.81	19.704		535	870		1,405	1,900
2" x 8"		.86	18.605		565	820		1,385	1,875
Pneumatic nailed		1	16.048		565	710		1,275	1,725
2" x 10"		1	16		605	705		1,310	1,750
Pneumatic nailed		1.16	13.793		605	610		1,215	1,600
2" x 12"		1.10	14.545		640	640		1,280	1,675
Pneumatic nailed		1.28	12.539		640	555		1,195	1,550
2" x 14"		1.17	13.675		725	605		1,330	1,725
Pneumatic nailed		1.36	11.791		725	520		1,245	1,600
3" x 8"		1.10	14.545		1,050	640		1,690	2,150
3" x 10"		1.25	12.800		1,075	565		1,640	2,050
3" x 12"		1.35	11.852		1,100	525		1,625	2,000
3" x 14"		1.40	11.429		1,100	505		1,605	1,975
4" x 8"	F-3	2.66	15.038		1,275	675	230	2,180	2,675
4" x 10"		3.16	12.658		1,275	570	194	2,039	2,475
4" x 12"		3.60	11.111		1,375	500	170	2,045	2,475
4" x 14"		3.96	10.101		1,525	455	155	2,135	2,550
Double, 2" x 6"	2 Carp	1.25	12.800		535	565		1,100	1,450
Pneumatic nailed		1.45	11.034		535	485		1,020	1,325
2" x 8"		1.60	10		565	440		1,005	1,300
Pneumatic nailed		1.86	8.621		565	380		945	1,200
2" x 10"		1.92	8.333		605	370		975	1,225
Pneumatic nailed		2.23	7.185		605	315		920	1,150
2" x 12"		2.20	7.273		640	320		960	1,200
Pneumatic nailed		2.55	6.275		640	277		917	1,125
2" x 14"		2.45	6.531		725	288		1,013	1,250
Pneumatic nailed		2.84	5.634		725	248		973	1,175
Triple, 2" x 6"		1.65	9.697		535	430		965	1,250
Pneumatic nailed		1.91	8.377		535	370		905	1,150
2" x 8"		2.10	7.619		565	335		900	1,125
Pneumatic nailed		2.44	6.568		565	290		855	1,075
2" x 10"		2.50	6.400		605	282		887	1,100
Pneumatic nailed		2.90	5.517		605	243		848	1,050
2" x 12"		2.85	5.614		640	248		888	1,075
Pneumatic nailed		3.31	4.840		640	213		853	1,025
2" x 14"		3.15	5.079		725	224		949	1,150
Pneumatic nailed		3.35	4.770		725	210		935	1,125

11 10.12 Ceiling Framing

CEILING FRAMING									
Suspended, 2" x 3"	2 Carp	.50	32	M.B.F.	665	1,400		2,065	2,900
2" x 4"		.59	27.119		490	1,200		1,690	2,400
2" x 6"		.80	20		535	880		1,415	1,925
2" x 8"		.86	18.605		565	820		1,385	1,875

11 10.14 Posts and Columns

POSTS AND COLUMNS									
4" x 4"	2 Carp	.52	30.769	M.B.F.	1,225	1,350		2,575	3,450
4" x 6"		.55	29.091		1,250	1,275		2,525	3,350
4" x 8"		.59	27.119		1,275	1,200		2,475	3,250

06 11 Wood Framing

06 11 10 – Framing with Dimensional, Engineered or Composite Lumber

06 11 10.14 Posts and Columns		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl.
0460	6" x 6"	2 Carp	.65	24.615	M.B.F.	1,200	1,075		2,275	2.7
0480	6" x 8"		.70	22.857		1,200	1,000		2,200	2.7
0500	6" x 10"		.75	21.333		1,300	940		2,240	2.7
06 11 10.18 Joist Framing										
0010	JOIST FRAMING									
				R061110-30						
2650	Joists, 2" x 4"	2 Carp	.83	19.277	M.B.F.	490	850		1,340	1.7
2655	Pneumatic nailed		.96	16.667		490	735		1,225	1.7
2680	2" x 6"		1.25	12.800		535	565		1,100	1.7
2685	Pneumatic nailed		1.44	11.111		535	490		1,025	1.7
2700	2" x 8"		1.46	10.959		565	485		1,050	1.7
2705	Pneumatic nailed		1.68	9.524		565	420		985	1.7
2720	2" x 10"		1.49	10.738		605	475		1,080	1.7
2725	Pneumatic nailed		1.71	9.357		605	415		1,020	1.7
2740	2" x 12"		1.75	9.143		640	405		1,045	1.7
2745	Pneumatic nailed		2.01	7.960		640	350		990	1.7
2760	2" x 14"		1.79	8.939		725	395		1,120	1.7
2765	Pneumatic nailed		2.06	7.767		725	345		1,070	1.7
2780	3" x 6"		1.39	11.511		900	510		1,410	1.7
2790	3" x 8"		1.90	8.421		1,050	370		1,420	1.7
2800	3" x 10"		1.95	8.205		1,075	360		1,435	1.7
2820	3" x 12"		1.80	8.889		1,100	390		1,490	1.7
2840	4" x 6"		1.60	10		1,250	440		1,690	2.7
2850	4" x 8"		4.15	3.855		1,275	170		1,445	1.7
2860	4" x 10"		2	8		1,275	355		1,630	1.7
2880	4" x 12"		1.80	8.889		1,375	390		1,765	2.7
3000	Composite wood joist 9-1/2" deep		.90	17.778	M.L.F.	1,625	785		2,410	2.7
3010	11-1/2" deep		.88	18.182		1,825	800		2,625	3.7
3020	14" deep		.82	19.512		2,525	860		3,385	4.7
3030	16" deep		.78	20.513		3,125	905		4,030	4.7
4000	Open web joist 12" deep		.88	18.182		2,900	800		3,700	4.7
4010	14" deep		.82	19.512		3,150	860		4,010	4.7
4020	16" deep		.78	20.513		3,200	905		4,105	4.7
4030	18" deep		.74	21.622		3,350	955		4,305	5.7
6000	Composite rim joist, 1-1/4" x 9-1/2"		.90	17.778		1,750	785		2,535	3.7
6010	1-1/4" x 11-1/2"		.88	18.182		2,250	800		3,050	3.7
6020	1-1/4" x 14-1/2"		.82	19.512		2,525	860		3,385	4.7
6030	1-1/4" x 16-1/2"		.78	20.513		3,100	905		4,005	4.7
06 11 10.24 Miscellaneous Framing										
0010	MISCELLANEOUS FRAMING									
8500	Firestops, 2" x 4"	2 Carp	.51	31.373	M.B.F.	490	1,375		1,865	2.7
8505	Pneumatic nailed		.62	25.806		490	1,150		1,640	2.7
8520	2" x 6"		.60	26.667		535	1,175		1,710	2.7
8525	Pneumatic nailed		.73	21.858		535	965		1,500	2.7
8540	2" x 8"		.60	26.667		565	1,175		1,740	2.7
8560	2" x 12"		.70	22.857		640	1,000		1,640	2.7
8600	Nailers, treated, wood construction, 2" x 4"		.53	30.189		500	1,325		1,825	2.7
8605	Pneumatic nailed		.64	25.157		500	1,100		1,600	2.7
8620	2" x 6"		.75	21.333		630	940		1,570	2.7
8625	Pneumatic nailed		.90	17.778		630	785		1,415	1.7
8640	2" x 8"		.93	17.204		660	760		1,420	1.7
8645	Pneumatic nailed		1.12	14.337		660	630		1,290	1.7
8660	Steel construction, 2" x 4"		.50	32		500	1,400		1,900	2.7

11 Wood Framing

11 10 – Framing with Dimensional, Engineered or Composite Lumber

11 10.24 Miscellaneous Framing	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
2" x 6"	2 Carp	.70	22.857	M.B.F.	630	1,000		1,630	2,250
2" x 8"		.87	18.391		660	810		1,470	1,975
Rough bucks, treated, for doors or windows, 2" x 6"		.40	40		630	1,775		2,405	3,425
Pneumatic nailed		.48	33.333		630	1,475		2,105	2,950
2" x 8"		.51	31.373		660	1,375		2,035	2,850
Pneumatic nailed		.61	26.144		660	1,150		1,810	2,500
Stair stringers, 2" x 10"		.22	72.727		605	3,200		3,805	5,600
2" x 12"		.26	61.538		640	2,725		3,365	4,875
3" x 10"		.31	51.613		1,075	2,275		3,350	4,675
3" x 12"		.38	42.105		1,100	1,850		2,950	4,050
Laminated structural lumber, 1-1/4" x 11-1/2"		.130	.123	L.F.	2.25	5.45		7.70	10.80
1-1/4" x 14-1/2"		.130	.123	"	2.53	5.45		7.98	11.15

11 10.26 Partitions

PARTITIONS									
Single bottom and double top plate, no waste, std. & better lumber									
2" x 4" studs, 8' high, studs 12" O.C.	2 Carp	80	.200	L.F.	3.60	8.80		12.40	17.50
12" O.C., pneumatic nailed		96	.167		3.60	7.35		10.95	15.25
16" O.C.		100	.160		2.95	7.05		10	14.10
16" O.C., pneumatic nailed		120	.133		2.95	5.90		8.85	12.30
24" O.C.		125	.128		2.29	5.65		7.94	11.20
24" O.C., pneumatic nailed		150	.107		2.29	4.70		6.99	9.75
10' high, studs 12" O.C.		80	.200		4.26	8.80		13.06	18.25
12" O.C., pneumatic nailed		96	.167		4.26	7.35		11.61	16
16" O.C.		100	.160		3.44	7.05		10.49	14.65
16" O.C., pneumatic nailed		120	.133		3.44	5.90		9.34	12.85
24" O.C.		125	.128		2.62	5.65		8.27	11.60
24" O.C., pneumatic nailed		150	.107		2.62	4.70		7.32	10.15
12' high, studs 12" O.C.		65	.246		4.91	10.85		15.76	22
12" O.C., pneumatic nailed		78	.205		4.91	9.05		13.96	19.30
16" O.C.		80	.200		3.93	8.80		12.73	17.85
16" O.C., pneumatic nailed		96	.167		3.93	7.35		11.28	15.60
24" O.C.		100	.160		2.95	7.05		10	14.10
24" O.C., pneumatic nailed		120	.133		2.95	5.90		8.85	12.30
2" x 6" studs, 8' high, studs 12" O.C.		70	.229		5.85	10.10		15.95	22
12" O.C., pneumatic nailed		84	.190		5.85	8.40		14.25	19.35
16" O.C.		90	.178		4.80	7.85		12.65	17.35
16" O.C., pneumatic nailed		108	.148		4.80	6.55		11.35	15.35
24" O.C.		115	.139		3.73	6.15		9.88	13.55
24" O.C., pneumatic nailed		138	.116		3.73	5.10		8.83	11.95
10' high, studs 12" O.C.		70	.229		6.95	10.10		17.05	23
12" O.C., pneumatic nailed		84	.190		6.95	8.40		15.35	20.50
16" O.C.		90	.178		5.60	7.85		13.45	18.20
16" O.C., pneumatic nailed		108	.148		5.60	6.55		12.15	16.20
24" O.C.		115	.139		4.26	6.15		10.41	14.15
24" O.C., pneumatic nailed		138	.116		4.26	5.10		9.36	12.55
12' high, studs 12" O.C.		55	.291		8	12.85		20.85	28.50
12" O.C., pneumatic nailed		66	.242		8	10.70		18.70	25.50
16" O.C.		70	.229		6.40	10.10		16.50	22.50
16" O.C., pneumatic nailed		84	.190		6.40	8.40		14.80	19.95
24" O.C.		90	.178		4.80	7.85		12.65	17.35
24" O.C., pneumatic nailed		108	.148		4.80	6.55		11.35	15.35
For horizontal blocking, 2" x 4", add		600	.027		.33	1.18		1.51	2.17

06 11 Wood Framing

06 11 10 -- Framing with Dimensional, Engineered or Composite Lumber

06 11 10.26 Partitions		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Tot Ind
1500	2" x 6", add	2 Carp	600	.027	L.F.	.53	1.18		1.71	
1600	For openings, add		250	.064			2.82		2.82	
1700	Headers for above openings, material only, add				M.B.F.	565			565	6

06 11 10.28 Porch or Deck Framing

0010	PORCH OR DECK FRAMING									
0100	Treated lumber, posts or columns, 4" x 4"	2 Carp	390	.041	L.F.	.82	1.81		2.63	
0110	4" x 6"		275	.058		2.11	2.57		4.68	
0120	4" x 8"		220	.073		4.32	3.21		7.53	
0130	Girder, single, 4" x 4"		675	.024		.82	1.05		1.87	
0140	4" x 6"		600	.027		2.11	1.18		3.29	
0150	4" x 8"		525	.030		4.32	1.34		5.66	
0160	Double, 2" x 4"		625	.026		.70	1.13		1.83	
0170	2" x 6"		600	.027		1.31	1.18		2.49	
0180	2" x 8"		575	.028		1.82	1.23		3.05	
0190	2" x 10"		550	.029		2.41	1.28		3.69	
0200	2" x 12"		525	.030		3.22	1.34		4.56	
0210	Triple, 2" x 4"		575	.028		1.05	1.23		2.28	
0220	2" x 6"		550	.029		1.96	1.28		3.24	
0230	2" x 8"		525	.030		2.73	1.34		4.07	
0240	2" x 10"		500	.032		3.61	1.41		5.02	
0250	2" x 12"		475	.034		4.83	1.49		6.32	
0260	Ledger, bolted 4' O.C., 2" x 4"		400	.040		.46	1.76		2.22	
0270	2" x 6"		395	.041		.75	1.79		2.54	
0280	2" x 8"		390	.041		1	1.81		2.81	
0300	2" x 12"		380	.042		1.69	1.86		3.55	
0310	Joists, 2" x 4"		1250	.013		.35	.56		.91	
0320	2" x 6"		1250	.013		.66	.56		1.22	
0330	2" x 8"		1100	.015		.91	.64		1.55	
0340	2" x 10"		900	.018		1.21	.78		1.99	
0350	2" x 12"		875	.018		1.45	.81		2.26	
0360	Railings and trim, 1" x 4"	1 Carp	300	.027		.41	1.18		1.59	
0370	2" x 2"		300	.027		.35	1.18		1.53	
0380	2" x 4"		300	.027		.33	1.18		1.51	
0390	2" x 6"		300	.027		.63	1.18		1.81	
0400	Decking, 1" x 4"		275	.029	S.F.	1.64	1.28		2.92	
0410	2" x 4"		300	.027		1.14	1.18		2.32	
0420	2" x 6"		320	.025		1.37	1.10		2.47	
0430	5/4" x 6"		320	.025		1.92	1.10		3.02	
0440	Ballusters, square, 2" x 2"	2 Carp	660	.024	L.F.	.36	1.07		1.43	
0450	Turned, 2" x 2"		420	.038		.48	1.68		2.16	
0460	Stair stringer, 2" x 10"		130	.123		1.21	5.45		6.66	
0470	2" x 12"		130	.123		1.45	5.45		6.90	
0480	Stair treads, 1" x 4"		140	.114		1.65	5.05		6.70	
0490	2" x 4"		140	.114		.35	5.05		5.40	
0500	2" x 6"		160	.100		.53	4.41		4.94	
0510	5/4" x 6"		160	.100		.90	4.41		5.31	
0520	Turned handrail post, 4" x 4"		64	.250	Ea.	32	11.05		43.05	
0530	Lattice panel, 4' x 8', 1/2"		1600	.010	S.F.	.80	.44		1.24	
0535	3/4"		1600	.010	"	1.20	.44		1.64	
0540	Cedar, posts or columns, 4" x 4"		390	.041	L.F.	2.83	1.81		4.64	
0550	4" x 6"		275	.058		5.25	2.57		7.82	
0560	4" x 8"		220	.073		8.85	3.21		12.06	

5 11 Wood Framing

11 10 – Framing with Dimensional, Engineered or Composite Lumber

11 10.28 Porch or Deck Framing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
	Decking, 1" x 4"	2 Corp	550	.029	L.F.	1.81	1.28		3.09	3.96
	2" x 4"		600	.027		3.62	1.18		4.80	5.80
	2" x 6"		640	.025		6.30	1.10		7.40	8.65
	5/4" x 6"		640	.025		4.08	1.10		5.18	6.20
	Railings and trim, 1" x 4"		600	.027		1.81	1.18		2.99	3.80
	2" x 4"		600	.027		3.62	1.18		4.80	5.80
	2" x 6"		600	.027		6.30	1.18		7.48	8.75
	Stair treads, 1" x 4"		140	.114		1.81	5.05		6.86	9.75
	2" x 4"		140	.114		3.62	5.05		8.67	11.75
	2" x 6"		160	.100		6.30	4.41		10.71	13.75
	5/4" x 6"		160	.100		4.08	4.41		8.49	11.30
	Redwood, posts or columns, 4" x 4"		390	.041		6.40	1.81		8.21	9.85
	4" x 6"		275	.058		11.20	2.57		13.77	16.25
	4" x 8"		220	.073		20.50	3.21		23.71	27.50
	Redwood decking, 1" x 4"	1 Corp	275	.029	S.F.	3.97	1.28		5.25	6.35
	2" x 6"		340	.024		7.50	1.04		8.54	9.85
	5/4" x 6"		320	.025		4.74	1.10		5.84	6.90
	Railings and trim, 1" x 4"	2 Corp	600	.027	L.F.	1.17	1.18		2.35	3.09
	2" x 6"		600	.027		7.50	1.18		8.68	10.05
	Alternative decking, wood/plastic composite, 5/4" x 6"	G	640	.025		3	1.10		4.10	5
	1" x 4" square edge fir		550	.029		1.66	1.28		2.94	3.79
	1" x 4" tongue and groove fir		450	.036		1.41	1.57		2.98	3.96
	1" x 4" mahogany		550	.029		2.51	1.28		3.79	4.73
	5/4" x 6" PVC		550	.029		3.01	1.28		4.29	5.30
	Framing, porch or deck, alt deck fastening, screws, add	1 Corp	240	.033	S.F.		1.47		1.47	2.26
	Accessories, joist hangers, 2" x 4"		160	.050	Ea.	.67	2.21		2.88	4.13
	2" x 6" through 2" x 12"		150	.053		1.28	2.35		3.63	5.05
	Post footing, incl excav, backfill, tube form & concrete, 4' deep, 8" dia	F-7	12	2.667		11.15	106		117.15	174
	10" diameter		11	2.909		16.55	115		131.55	195
	12" diameter		10	3.200		22	127		149	219

11 10.30 Roof Framing

ROOF FRAMING		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
	Composite rafter, 9-1/2" deep	2 Corp	575	.028	L.F.	1.62	1.23		2.85	3.67
	11-1/2" deep		575	.028	"	1.82	1.23		3.05	3.90
	Fascia boards, 2" x 8"		.30	53.333	M.B.F.	565	2,350		2,915	4,250
	2" x 10"		.30	53.333		605	2,350		2,955	4,300
	Rafters, to 4 in 12 pitch, 2" x 6"		1	16		535	705		1,240	1,650
	2" x 8"		1.26	12.698		565	560		1,125	1,475
	Hip and valley rafters, 2" x 6"		.76	21.053		535	930		1,465	2,000
	2" x 8"		.96	16.667		565	735		1,300	1,750
	Hip and valley jacks, 2" x 6"		.60	26.667		535	1,175		1,710	2,375
	2" x 8"		.65	24.615		565	1,075		1,640	2,300
	For slopes steeper than 4 in 12, add						30%			
	For dormers or complex roofs, add						50%			
	Rafter tie, 1" x 4", #3	2 Corp	.27	59.259	M.B.F.	1,225	2,625		3,850	5,375
	Ridge board, #2 or better, 1" x 6"		.30	53.333		1,450	2,350		3,800	5,200
	1" x 8"		.37	43.243		1,500	1,900		3,400	4,575
	1" x 10"		.42	38.095		1,550	1,675		3,225	4,300
	2" x 6"		.50	32		535	1,400		1,935	2,750
	2" x 8"		.60	26.667		565	1,175		1,740	2,425
	2" x 10"		.66	24.242		605	1,075		1,680	2,325
	Roof cants, split, 4" x 4"		.86	18.605		1,225	820		2,045	2,600

06 11 Wood Framing

06 11 10 – Framing with Dimensional, Engineered or Composite Lumber

06 11 10.30 Roof Framing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	To Incl
7960	6" x 6"	2 Corp	1.80	8.889	M.B.F.	1,200	390		1,590	
7980	Roof curbs, untreated, 2" x 6"		.52	30.769		535	1,350		1,885	
8000	2" x 12"		.80	20		640	880		1,520	
06 11 10.32 Sill and Ledger Framing										
SILL AND LEDGER FRAMING										
4482	Ledgers, nailed, 2" x 4"	2 Corp	.50	32	M.B.F.	490	1,400		1,890	
4484	2" x 6"		.60	26.667		535	1,175		1,710	
4486	Bolted, not including bolts, 3" x 8"		.65	24.615		1,050	1,075		2,125	
4488	3" x 12"		.70	22.857		1,100	1,000		2,100	
4490	Mud sills, redwood, construction grade, 2" x 4"		.59	27.119		3,400	1,200		4,600	
4492	2" x 6"		.78	20.513		3,400	905		4,305	
4500	Sills, 2" x 4"		.40	40		490	1,775		2,265	
4520	2" x 6"		.55	29.091		535	1,275		1,810	
4540	2" x 8"		.67	23.881		565	1,050		1,615	
4600	Treated, 2" x 4"		.36	44.444		500	1,950		2,450	
4620	2" x 6"		.50	32		630	1,400		2,030	
4640	2" x 8"		.60	26.667		660	1,175		1,835	
4700	4" x 4"		.60	26.667		590	1,175		1,765	
4720	4" x 6"		.70	22.857		1,025	1,000		2,025	
4740	4" x 8"		.80	20		1,600	880		2,480	
4760	4" x 10"		.87	18.391		1,750	810		2,560	
06 11 10.34 Sleepers										
SLEEPERS										
0300	On concrete, treated, 1" x 2"	2 Corp	.39	41.026	M.B.F.	1,750	1,800		3,550	
0320	1" x 3"		.50	32		1,700	1,400		3,100	
0340	2" x 4"		.99	16.162		500	715		1,215	
0360	2" x 6"		1.30	12.308		630	545		1,175	
06 11 10.36 Soffit and Canopy Framing										
SOFFIT AND CANOPY FRAMING										
1300	Canopy or soffit framing, 1" x 4"	2 Corp	.30	53.333	M.B.F.	1,225	2,350		3,575	
1340	1" x 8"		.50	32		1,500	1,400		2,900	
1360	2" x 4"		.41	39.024		490	1,725		2,215	
1400	2" x 8"		.67	23.881		565	1,050		1,615	
1420	3" x 4"		.50	32		850	1,400		2,250	
1460	3" x 8"		.60	26.667		1,050	1,175		2,225	
06 11 10.38 Treated Lumber Framing Material										
TREATED LUMBER FRAMING MATERIAL										
0100	2" x 4"				M.B.F.	500			500	
0110	2" x 6"					630			630	
0120	2" x 8"					660			660	
0130	2" x 10"					700			700	
0140	2" x 12"					780			780	
0200	4" x 4"					590			590	
0210	4" x 6"					1,025			1,025	
0220	4" x 8"					1,600			1,600	
06 11 10.40 Wall Framing										
WALL FRAMING										
5860	Headers over openings, 2" x 6"	2 Corp	.36	44.444	M.B.F.	535	1,950		2,485	
5865	2" x 6", pneumatic nailed		.43	37.209		535	1,650		2,185	
5880	2" x 8"		.45	35.556		565	1,575		2,140	
5885	2" x 8", pneumatic nailed		.54	29.630		565	1,300		1,865	

5 11 Wood Framing

11 10 – Framing with Dimensional, Engineered or Composite Lumber

11 10.40 Wall Framing	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
2" x 10"	2 Carp	.53	30.189	M.B.F.	605	1,325		1,930	2,725
2" x 10", pneumatic nailed		.67	23.881		605	1,050		1,655	2,300
2" x 12"		.60	26.667		640	1,175		1,815	2,500
2" x 12", pneumatic nailed		.72	22.222		640	980		1,620	2,200
4" x 12"		.76	21.053		1,375	930		2,305	2,950
4" x 12", pneumatic nailed		.92	17.391		1,375	765		2,140	2,700
6" x 12"		.84	19.048		1,700	840		2,540	3,175
6" x 12", pneumatic nailed		1.01	15.873		1,700	700		2,400	2,950
Plates, untreated, 2" x 3"		.43	37.209		665	1,650		2,315	3,250
2" x 3", pneumatic nailed		.52	30.769		665	1,350		2,015	2,825
2" x 4"		.53	30.189		490	1,325		1,815	2,600
2" x 4", pneumatic nailed		.67	23.881		490	1,050		1,540	2,175
2" x 6"		.75	21.333		535	940		1,475	2,025
2" x 6", pneumatic nailed		.90	17.778		535	785		1,320	1,775
Studs, 8' high wall, 2" x 3"		.60	26.667		665	1,175		1,840	2,525
2" x 3", pneumatic nailed		.72	22.222		665	980		1,645	2,225
2" x 4"		.92	17.391		490	765		1,255	1,725
2" x 4", pneumatic nailed		1.10	14.493		490	640		1,130	1,525
2" x 6"		1	16		535	705		1,240	1,650
2" x 6", pneumatic nailed		1.20	13.333		535	590		1,125	1,500
3" x 4"		.80	20		850	880		1,730	2,275
3" x 4", pneumatic nailed	▼	.96	16.667	▼	850	735		1,585	2,050
For 12' high walls, deduct						5%			
For stub wall, 6' high, add						20%			
3' high, add						40%			
For second story & above, add						5%			
For dormer & gable, add						15%			

11 10.42 Furring

FURRING									
Wood strips, 1" x 2", on walls, on wood	1 Carp	550	.015	L.F.	.25	.64		.89	1.27
On wood, pneumatic nailed		710	.011		.25	.50		.75	1.04
On masonry		495	.016		.25	.71		.96	1.38
On concrete		260	.031		.25	1.36		1.61	2.37
1" x 3", on walls, on wood		550	.015		.34	.64		.98	1.37
On wood, pneumatic nailed		710	.011		.34	.50		.84	1.14
On masonry		495	.016		.34	.71		1.05	1.48
On concrete		260	.031		.34	1.36		1.70	2.47
On ceilings, on wood		350	.023		.34	1.01		1.35	1.93
On wood, pneumatic nailed		450	.018		.34	.78		1.12	1.59
On masonry		320	.025		.34	1.10		1.44	2.08
On concrete	▼	210	.038	▼	.34	1.68		2.02	2.97

11 10.44 Grounds

GROUNDS									
For casework, 1" x 2" wood strips, on wood	1 Carp	330	.024	L.F.	.25	1.07		1.32	1.92
On masonry		285	.028		.25	1.24		1.49	2.18
On concrete		250	.032		.25	1.41		1.66	2.45
For plaster, 3/4" deep, on wood		450	.018		.25	.78		1.03	1.49
On masonry		225	.036		.25	1.57		1.82	2.69
On concrete		175	.046		.25	2.02		2.27	3.38
On metal lath	▼	200	.040	▼	.25	1.76		2.01	2.99

06 12 Structural Panels

06 12 10 - Structural Insulated Panels

06 12 10.10 OSB Faced Panels					Daily Crew	Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Incl.
OSB FACED PANELS										Labor	Equipment		
0010	Structural insul. panels, 7/16" OSB both faces, EPS insul, 3-5/8" T				G	F-3	2075	.019	S.F.	2.79	.86	.30	3.95
0100	5-5/8" thick				G		1725	.023		3.13	1.04	.35	4.52
0110	7-3/8" thick				G		1425	.028		3.41	1.26	.43	5.10
0130	9-3/8" thick				G		1125	.036		3.73	1.59	.54	5.86
0140	7/16" OSB one face, EPS insul, 3-5/8" thick				G		2175	.018		2.97	.82	.28	4.07
0150	5-5/8" thick				G		1825	.022		3.40	.98	.34	4.72
0160	7-3/8" thick				G		1525	.026		3.79	1.18	.40	5.37
0170	9-3/8" thick				G		1225	.033		4.22	1.46	.50	6.18
0190	7/16" OSB - 1/2" GWB faces , EPS insul, 3-5/8" T				G		2075	.019		2.94	.86	.30	4.10
0200	5-5/8" thick				G		1725	.023		3.37	1.04	.35	4.76
0210	7-3/8" thick				G		1425	.028		3.75	1.26	.43	5.44
0220	9-3/8" thick				G		1125	.036		4.40	1.59	.54	6.53
0240	7/16" OSB - 1/2" MRGWB faces , EPS insul, 3-5/8" T				G		2075	.019		2.94	.86	.30	4.10
0250	5-5/8" thick				G		1725	.023		3.37	1.04	.35	4.76
0260	7-3/8" thick				G		1425	.028		3.75	1.26	.43	5.44
0270	9-3/8" thick				G		1125	.036		4.40	1.59	.54	6.53
0300	For 1/2" GWB added to OSB skin, add				G					.62			.62
0310	For 1/2" MRGWB added to OSB skin, add				G					.62			.62
0320	For one T1-11 skin, add to OSB-OSB				G					1.42			1.42
0330	For one 19/32" CDX skin, add to OSB-OSB				G					.72			.72
0500	Structural insulated panel, 7/16" OSB both sides, straw core												
0510	4-3/8" T, walls (w/sill, splines, plates)				G	F-6	2400	.017	S.F.	6.75	.69	.26	7.70
0520	Floors (w/splines)				G		2400	.017		6.75	.69	.26	7.70
0530	Roof (w/splines)				G		2400	.017		6.75	.69	.26	7.70
0550	7-7/8" T, walls (w/sill, splines, plates)				G		2400	.017		10.20	.69	.26	11.15
0560	Floors (w/splines)				G		2400	.017		10.20	.69	.26	11.15
0570	Roof (w/splines)				G		2400	.017		10.20	.69	.26	11.15

06 12 19 - Composite Shearwall Panels

06 12 19.10 Steel and Wood Composite Shearwall Panels													
STEEL & WOOD COMPOSITE SHEARWALL PANELS													
0010	Anchor bolts, 36" long (must be placed in wet concrete)				1 Carp	150	.053	Ea.	33	2.35			35.35
0030	On concrete, 2 x 4 & 2 x 6 walls, 7' - 10' high, 360 lb. shear, 12" wide				2 Carp	8	2		380	88			468
0040	715 lb. shear, 15" wide					8	2		440	88			528
0050	1860 lb. shear, 18" wide					8	2		470	88			558
0060	2780 lb. shear, 21" wide					8	2		560	88			648
0070	3790 lb. shear, 24" wide					8	2		640	88			728
0080	2 x 6 walls, 11' to 13' high, 1180 lb. shear, 18" wide					6	2.667		580	118			698
0090	1555 lb. shear, 21" wide					6	2.667		725	118			843
0100	2280 lb. shear, 24" wide					6	2.667		805	118			923
0110	For installing above on wood floor frame, add												
0120	Coupler nuts, threaded rods, bolts, shear transfer plate kit				1 Carp	16	.500	Ea.	50	22			72
0130	Framing anchors, angle (2 required)				"	96	.083	"	2.40	3.67			6.07
0140	For blocking see Section 06 11 10.02												
0150	For installing above, first floor to second floor, wood floor frame, add												
0160	Add stack option to first floor wall panel							Ea.	55				55
0170	Threaded rods, bolts, shear transfer plate kit				1 Carp	16	.500		60	22			82
0180	Framing anchors, angle (2 required)				"	96	.083		2.40	3.67			6.07
0200	For installing stacked panels, balloon framing												
0210	Add stack option to first floor wall panel							Ea.	55				55
0220	Threaded rods, bolts kit				1 Carp	16	.500	"	35	22			57

5 13 Heavy Timber Construction

13 23 - Heavy Timber Framing

13 23.10 Heavy Framing	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
HEAVY FRAMING									
Beams, single 6" x 10"	2 Corp	1.10	14.545	M.B.F.	1,400	640		2,040	2,525
Single 8" x 16"		1.20	13.333		1,975	590		2,565	3,075
Built from 2" lumber, multiple 2" x 14"		.90	17.778		725	785		1,510	2,000
Built from 3" lumber, multiple 3" x 6"		.70	22.857		900	1,000		1,900	2,550
Multiple 3" x 8"		.80	20		1,050	880		1,930	2,525
Multiple 3" x 10"		.90	17.778		1,075	785		1,860	2,375
Multiple 3" x 12"		1	16		1,100	705		1,805	2,275
Built from 4" lumber, multiple 4" x 6"		.80	20		1,250	880		2,130	2,725
Multiple 4" x 8"		.90	17.778		1,275	785		2,060	2,600
Multiple 4" x 10"		1	16		1,275	705		1,980	2,475
Multiple 4" x 12"		1.10	14.545		1,375	640		2,015	2,500
Columns, structural grade, 1500f, 4" x 4"		.60	26.667		1,275	1,175		2,450	3,200
6" x 6"		.65	24.615		1,300	1,075		2,375	3,100
8" x 8"		.70	22.857		1,350	1,000		2,350	3,025
10" x 10"		.75	21.333		1,450	940		2,390	3,050
12" x 12"		.80	20		1,525	880		2,405	3,025
Floor planks, 2" thick, T & G, 2" x 6"		1.05	15.238		1,050	670		1,720	2,175
2" x 10"		1.10	14.545		1,050	640		1,690	2,125
3" thick, 3" x 6"		1.05	15.238		1,250	670		1,920	2,400
3" x 10"		1.10	14.545		1,250	640		1,890	2,350
Girders, structural grade, 12" x 12"		.80	20		1,525	880		2,405	3,025
10" x 16"		1	16		2,400	705		3,105	3,725
Roof purlins, 4" thick, structural grade	▼	1.05	15.238	▼	1,275	670		1,945	2,425

6 15 Wood Decking

15 16 - Wood Roof Decking

15 16.10 Solid Wood Roof Decking

SOLID WOOD ROOF DECKING									
Cedar planks, 3" thick	2 Corp	320	.050	S.F.	7	2.21		9.21	11.05
4" thick		250	.064		9.30	2.82		12.12	14.60
Douglas fir, 3" thick		320	.050		2.94	2.21		5.15	6.60
4" thick		250	.064		3.92	2.82		6.74	8.65
Hemlock, 3" thick		320	.050		3.28	2.21		5.49	7
4" thick		250	.064		4.36	2.82		7.18	9.15
Western white spruce, 3" thick		320	.050		1.92	2.21		4.13	5.50
4" thick	▼	250	.064	▼	2.55	2.82		5.37	7.15

15 23 - Laminated Wood Decking

15 23.10 Laminated Roof Deck

LAMINATED ROOF DECK									
Pine or hemlock, 3" thick	2 Corp	425	.038	S.F.	3.83	1.66		5.49	6.75
4" thick		325	.049		5.10	2.17		7.27	8.95
Cedar, 3" thick		425	.038		4.20	1.66		5.86	7.15
4" thick		325	.049		5.35	2.17		7.52	9.20
Fir, 3" thick		425	.038		3.88	1.66		5.54	6.80
4" thick	▼	325	.049	▼	5.15	2.17		7.32	9.05

06 16 Sheathing

06 16 23 - Subflooring

06 16 23.10 Subfloor		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind C
							Labor	Equipment		
0010	SUBFLOOR									
0011	Plywood, CDX, 1/2" thick	R061636-20	2 Carp	1500	.011	SF Fir.	.47	.47	.94	
0015	Pneumatic nailed			1860	.009		.47	.38	.85	
0100	5/8" thick			1350	.012		.62	.52	1.14	
0105	Pneumatic nailed			1674	.010		.62	.42	1.04	
0200	3/4" thick			1250	.013		.70	.56	1.26	
0205	Pneumatic nailed			1550	.010		.70	.46	1.16	
0300	1-1/8" thick, 2-4-1 including underlayment			1050	.015		1.53	.67	2.20	
0440	With boards, 1" x 6", S4S, laid regular			900	.018		1.57	.78	2.35	
0450	1" x 8", laid regular			1000	.016		1.60	.71	2.31	
0460	Laid diagonal			850	.019		1.60	.83	2.43	
0500	1" x 10", laid regular			1100	.015		1.64	.64	2.28	
0600	Laid diagonal			900	.018		1.64	.78	2.42	
8990	Subfloor adhesive, 3/8" bead		1 Carp	2300	.003	L.F.	.12	.15	.27	

06 16 26 - Underlayment

06 16 26.10 Wood Product Underlayment		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind C
							Labor	Equipment		
0010	WOOD PRODUCT UNDERLAYMENT	R061636-20								
0030	Plywood, underlayment grade, 3/8" thick		2 Carp	1500	.011	SF Fir.	.73	.47	1.20	
0070	Pneumatic nailed			1860	.009		.73	.38	1.11	
0100	1/2" thick			1450	.011		.77	.49	1.26	
0105	Pneumatic nailed			1798	.009		.77	.39	1.16	
0200	5/8" thick			1400	.011		.96	.50	1.46	
0205	Pneumatic nailed			1736	.009		.96	.41	1.37	
0300	3/4" thick			1300	.012		1.17	.54	1.71	
0305	Pneumatic nailed			1612	.010		1.17	.44	1.61	
0500	Particle board, 3/8" thick	G		1500	.011		.35	.47	.82	
0505	Pneumatic nailed	G		1860	.009		.35	.38	.73	
0600	1/2" thick	G		1450	.011		.36	.49	.85	
0605	Pneumatic nailed	G		1798	.009		.36	.39	.75	
0800	5/8" thick	G		1400	.011		.46	.50	.96	
0805	Pneumatic nailed	G		1736	.009		.46	.41	.87	
0900	3/4" thick	G		1300	.012		.65	.54	1.19	
0905	Pneumatic nailed	G		1612	.010		.65	.44	1.09	
0955	Particleboard, 100% recycled straw/wheat, 4' x 8' x 1/4"	G		1450	.011	S.F.	.26	.49	.75	
0960	4' x 8' x 3/8"	G		1450	.011		.39	.49	.88	
0965	4' x 8' x 1/2"	G		1350	.012		.54	.52	1.06	
0970	4' x 8' x 5/8"	G		1300	.012		.64	.54	1.18	
0975	4' x 8' x 3/4"	G		1250	.013		.74	.56	1.30	
0980	4' x 8' x 1"	G		1150	.014		.99	.61	1.60	
0985	4' x 8' x 1-1/4"	G		1100	.015		1.16	.64	1.80	
1100	Hardboard, underlayment grade, 4' x 4', .215" thick	G		1500	.011	SF Fir.	.57	.47	1.04	

06 16 36 - Wood Panel Product Sheathing

06 16 36.10 Sheathing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind C
							Labor	Equipment		
0010	SHEATHING	R061636-20								
0012	Plywood on roofs, CDX		2 Carp	1600	.010	S.F.	.55	.44	.99	
0030	5/16" thick			1952	.008		.55	.36	.91	
0035	Pneumatic nailed	R061110-30		1525	.010		.47	.46	.93	
0050	3/8" thick			1860	.009		.47	.38	.85	
0055	Pneumatic nailed			1400	.011		.47	.50	.97	
0100	1/2" thick			1708	.009		.47	.41	.88	
0105	Pneumatic nailed			1300	.012		.62	.54	1.16	

6 16 Sheathing

16 36 – Wood Panel Product Sheathing

16 36.10 Sheathing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
							Labor	Equipment		
	Pneumatic nailed	2 Corp	1586	.010	S.F.	.62	.45		1.07	1.36
	3/4" thick		1200	.013		.70	.59		1.29	1.67
	Pneumatic nailed		1464	.011		.70	.48		1.18	1.51
	Plywood on walls with exterior CDX, 3/8" thick		1200	.013		.47	.59		1.06	1.42
	Pneumatic nailed		1488	.011		.47	.47		.94	1.25
	1/2" thick		1125	.014		.47	.63		1.10	1.48
	Pneumatic nailed		1395	.011		.47	.51		.98	1.30
	5/8" thick		1050	.015		.62	.67		1.29	1.71
	Pneumatic nailed		1302	.012		.62	.54		1.16	1.51
	3/4" thick		975	.016		.70	.72		1.42	1.88
	Pneumatic nailed		1209	.013		.70	.58		1.28	1.67
	Oriented strand board, 7/16" thick	G	1400	.011		.39	.50		.89	1.21
	Pneumatic nailed	G	1736	.009		.39	.41		.80	1.06
	1/2" thick	G	1325	.012		.39	.53		.92	1.25
	Pneumatic nailed	G	1643	.010		.39	.43		.82	1.09
	5/8" thick	G	1250	.013		.79	.56		1.35	1.74
	Pneumatic nailed	G	1550	.010		.79	.46		1.25	1.57
	For shear wall construction, add						20%			
	For structural 1 exterior plywood, add				S.F.	10%				
	With boards, on roof 1" x 6" boards, laid horizontal	2 Corp	725	.022		1.57	.97		2.54	3.23
	Laid diagonal		650	.025		1.57	1.09		2.66	3.40
	1" x 8" boards, laid horizontal		875	.018		1.60	.81		2.41	3
	Laid diagonal		725	.022		1.60	.97		2.57	3.26
	For steep roofs, add						40%			
	For dormers, hips and valleys, add					5%	50%			
	Boards on walls, 1" x 6" boards, laid regular	2 Corp	650	.025		1.57	1.09		2.66	3.40
	Laid diagonal		585	.027		1.57	1.21		2.78	3.59
	1" x 8" boards, laid regular		765	.021		1.60	.92		2.52	3.18
	Laid diagonal		650	.025		1.60	1.09		2.69	3.43
	Gypsum, weatherproof, 1/2" thick		1125	.014		.38	.63		1.01	1.38
	With embedded glass mats		1100	.015		.75	.64		1.39	1.82
	Wood fiber, regular, no vapor barrier, 1/2" thick		1200	.013		.56	.59		1.15	1.52
	5/8" thick		1200	.013		.71	.59		1.30	1.68
	No vapor barrier, in colors, 1/2" thick		1200	.013		.68	.59		1.27	1.65
	5/8" thick		1200	.013		.72	.59		1.31	1.69
	With vapor barrier one side, white, 1/2" thick		1200	.013		.55	.59		1.14	1.51
	Vapor barrier 2 sides, 1/2" thick		1200	.013		.77	.59		1.36	1.75
	Asphalt impregnated, 25/32" thick		1200	.013		.28	.59		.87	1.21
	Intermediate, 1/2" thick		1200	.013		.20	.59		.79	1.12

6 17 Shop-Fabricated Structural Wood

17 33 – Wood I-Joists

17 33.10 Wood and Composite I-Joists

WOOD AND COMPOSITE I-JOISTS										
	Plywood webs, incl. bridging & blocking, panels 24" O.C.									
	15' to 24' span, 50 psf live load	F-5	2400	.013	SF Flr.	1.84	.59		2.43	2.94
	55 psf live load		2250	.014		2.08	.63		2.71	3.27
	24' to 30' span, 45 psf live load		2600	.012		2.87	.55		3.42	3.99
	55 psf live load		2400	.013		3.55	.59		4.14	4.81

06 17 Shop-Fabricated Structural Wood

06 17 53 – Shop-Fabricated Wood Trusses

06 17 53.10 Roof Trusses				Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O
0010	ROOF TRUSSES											
0100	Fink (W) or King post type, 2'-0" O.C.											
0200	Metal plate connected, 4 in 12 slope											
0210	24' to 29' span				F-3	3000	.013	SF Flr.	1.50	.60	.20	2.30
0300	30' to 43' span					3000	.013		2.18	.60	.20	2.98
0400	44' to 60' span				▼	3000	.013		2.36	.60	.20	3.16
0700	Glued and nailed, add							▼	50%			

06 18 Glued-Laminated Construction

06 18 13 – Glued-Laminated Beams

06 18 13.20 Laminated Framing

0010	LAMINATED FRAMING											
0020	30 lb., short term live load, 15 lb. dead load											
0200	Straight roof beams, 20' clear span, beams 8' O.C.				F-3	2560	.016	SF Flr.	1.99	.70	.24	2.93
0300	Beams 16' O.C.					3200	.013		1.44	.56	.19	2.19
0500	40' clear span, beams 8' O.C.					3200	.013		3.80	.56	.19	4.55
0600	Beams 16' O.C.				▼	3840	.010		3.11	.47	.16	3.74
0800	60' clear span, beams 8' O.C.				F-4	2880	.017		6.55	.74	.38	7.67
0900	Beams 16' O.C.				"	3840	.013		4.87	.55	.29	5.71
1100	Tudor arches, 30' to 40' clear span, frames 8' O.C.				F-3	1680	.024		8.50	1.07	.36	9.93
1200	Frames 16' O.C.					2240	.018		6.70	.80	.27	7.77
1400	50' to 60' clear span, frames 8' O.C.				F-4	2200	.022		9.20	.97	.50	10.67
1500	Frames 16' O.C.					2640	.018		7.80	.80	.42	9.02
1700	Radial arches, 60' clear span, frames 8' O.C.					1920	.025		8.60	1.11	.57	10.28
1800	Frames 16' O.C.					2880	.017		6.60	.74	.38	7.72
2000	100' clear span, frames 8' O.C.					1600	.030		8.90	1.33	.69	10.92
2100	Frames 16' O.C.					2400	.020		7.80	.88	.46	9.14
2300	120' clear span, frames 8' O.C.					1440	.033		11.85	1.47	.76	14.08
2400	Frames 16' O.C.				▼	1920	.025		10.80	1.11	.57	12.48
2600	Bowstring trusses, 20' O.C., 40' clear span				F-3	2400	.017		5.35	.75	.26	6.36
2700	60' clear span				F-4	3600	.013		4.79	.59	.31	5.69
2800	100' clear span					4000	.012		6.80	.53	.28	7.61
2900	120' clear span				▼	3600	.013		7.25	.59	.31	8.15
3000	For less than 1000 B.F., add								20%			
3050	For over 5000 B.F., deduct								10%			
3100	For premium appearance, add to S.F. prices								5%			
3300	For industrial type, deduct								15%			
3500	For stain and varnish, add								5%			
3900	For 3/4" laminations, add to straight								25%			
4100	Add to curved							▼	15%			
4300	Alternate pricing method: (use nominal footage of											
4310	components). Straight beams, camber less than 6"				F-3	3.50	11.429	M.B.F.	2,950	510	175	3,635
4400	Columns, including hardware					2	20		3,175	895	305	4,375
4600	Curved members, radius over 32'					2.50	16		3,250	715	245	4,210
4700	Radius 10' to 32'				▼	3	13.333		3,225	600	204	4,029
4900	For complicated shapes, add maximum								100%			
5100	For pressure treating, add to straight								35%			
5200	Add to curved							▼	45%			
6000	Laminated veneer members, southern pine or western species											
6050	1-3/4" wide x 5-1/2" deep				2 Corp	480	.033	L.F.	3.19	1.47		4.66

5 18 Glued-Laminated Construction

18 13 – Glued-Laminated Beams

18 13.20 Laminated Framing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
9-1/2" deep		2 Carp	480	.033	L.F.	4.56	1.47		6.03	7.25
14" deep			450	.036		7.30	1.57		8.87	10.45
18" deep			450	.036		9.90	1.57		11.47	13.25
Parallel strand members, southern pine or western species										
1-3/4" wide x 9-1/4" deep		2 Carp	480	.033	L.F.	4.56	1.47		6.03	7.25
11-1/4" deep			450	.036		5.70	1.57		7.27	8.65
14" deep			400	.040		7.30	1.76		9.06	10.75
3-1/2" wide x 9-1/4" deep			480	.033		15.85	1.47		17.32	19.70
11-1/4" deep			450	.036		19.15	1.57		20.72	23.50
14" deep			400	.040		23.50	1.76		25.26	28
7" wide x 9-1/4" deep			450	.036		31.50	1.57		33.07	37.50
11-1/4" deep			420	.038		39.50	1.68		41.18	46
14" deep			400	.040		46.50	1.76		48.26	54
Straight beams										
20' span										
3-1/8" x 9"		F-3	30	1.333	Ea.	138	60	20.50	218.50	266
X 10-1/2"			30	1.333		161	60	20.50	241.50	291
X 12"			30	1.333		184	60	20.50	264.50	315
X 13-1/2"			30	1.333		207	60	20.50	287.50	340
X 15"			29	1.379		230	62	21	313	370
5-1/8" x 10-1/2"			30	1.333		265	60	20.50	345.50	405
X 12"			30	1.333		300	60	20.50	380.50	450
X 13-1/2"			30	1.333		340	60	20.50	420.50	490
X 15"			29	1.379		380	62	21	463	535
X 16-1/2"			29	1.379		415	62	21	498	575
X 18"			29	1.379		455	62	21	538	620
X 19-1/2"			29	1.379		490	62	21	573	660
X 21"			28	1.429		530	64	22	616	700
X 22-1/2"			28	1.429		565	64	22	651	745
X 24"			28	1.429		605	64	22	691	785
6-3/4" x 12"			29	1.379		400	62	21	483	560
X 13-1/2"			29	1.379		450	62	21	533	615
X 15"			29	1.379		500	62	21	583	670
X 16-1/2"			28	1.429		550	64	22	636	720
X 18"			28	1.429		595	64	22	681	775
X 19-1/2"			28	1.429		645	64	22	731	830
X 21"			27	1.481		695	66.50	22.50	784	890
X 22-1/2"			27	1.481		745	66.50	22.50	834	945
X 24"			27	1.481		795	66.50	22.50	884	1,000
X 25-1/2"			27	1.481		845	66.50	22.50	934	1,050
X 27"			26	1.538		895	69	23.50	987.50	1,125
X 28-1/2"			26	1.538		945	69	23.50	1,037.50	1,175
X 30"			26	1.538		995	69	23.50	1,087.50	1,225
30' span										
3-1/8" x 9"		F-3	30	1.333	Ea.	207	60	20.50	287.50	340
X 10-1/2"			30	1.333		242	60	20.50	322.50	380
X 12"			30	1.333		277	60	20.50	357.50	420
X 13-1/2"			30	1.333		310	60	20.50	390.50	455
X 15"			29	1.379		345	62	21	428	500
5-1/8" x 10-1/2"			30	1.333		395	60	20.50	475.50	550
X 12"			30	1.333		455	60	20.50	535.50	615
X 13-1/2"			30	1.333		510	60	20.50	590.50	675
X 15"			29	1.379		565	62	21	648	745

06 18 Glued-Laminated Construction

06 18 13 - Glued-Laminated Beams

06 18 13.20 Laminated Framing				Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total	Total Incl O
									Labor	Equipment			
8268	X 16-1/2"			F-3	29	1.379	Eq.	625	62	21		708	
8270	X 18"				29	1.379		680	62	21		763	
8272	X 19-1/2"				29	1.379		735	62	21		818	
8274	X 21"				28	1.429		795	64	22		881	
8276	X 22-1/2"				28	1.429		850	64	22		936	1
8278	X 24"				28	1.429		905	64	22		991	1
8280	6-3/4" x 12"				29	1.379		595	62	21		678	
8282	X 13-1/2"				29	1.379		670	62	21		753	
8284	X 15"				29	1.379		745	62	21		828	
8286	X 16-1/2"				28	1.429		820	64	22		906	1
8288	X 18"				28	1.429		895	64	22		981	1
8290	X 19-1/2"				28	1.429		970	64	22		1,056	1
8292	X 21"				27	1.481		1,050	66.50	22.50		1,139	1
8294	X 22-1/2"				27	1.481		1,125	66.50	22.50		1,214	1
8296	X 24"				27	1.481		1,200	66.50	22.50		1,289	1
8298	X 25-1/2"				27	1.481		1,275	66.50	22.50		1,364	1
8300	X 27"				26	1.538		1,350	69	23.50		1,442.50	1
8302	X 28-1/2"				26	1.538		1,425	69	23.50		1,517.50	1
8304	X 30"				26	1.538		1,500	69	23.50		1,592.50	1
8400	40' span												
8402	3-1/8" x 9"			F-3	30	1.333	Eq.	277	60	20.50		357.50	
8404	X 10-1/2"				30	1.333		325	60	20.50		405.50	
8406	X 12"				30	1.333		370	60	20.50		450.50	
8408	X 13-1/2"				30	1.333		415	60	20.50		495.50	
8410	X 15"				29	1.379		460	62	21		543	
8412	5-1/8" x 10-1/2"				30	1.333		530	60	20.50		610.50	
8414	X 12"				30	1.333		605	60	20.50		685.50	
8416	X 13-1/2"				30	1.333		680	60	20.50		760.50	
8418	X 15"				29	1.379		755	62	21		838	
8420	X 16-1/2"				29	1.379		830	62	21		913	1
8422	X 18"				29	1.379		905	62	21		988	1
8424	X 19-1/2"				29	1.379		985	62	21		1,068	1
8426	X 21"				28	1.429		1,050	64	22		1,136	1
8428	X 22-1/2"				28	1.429		1,125	64	22		1,211	1
8430	X 24"				28	1.429		1,200	64	22		1,286	1
8432	6-3/4" x 12"				29	1.379		795	62	21		878	
8434	X 13-1/2"				29	1.379		895	62	21		978	1
8436	X 15"				29	1.379		995	62	21		1,078	1
8438	X 16-1/2"				28	1.429		1,100	64	22		1,186	1
8440	X 18"				28	1.429		1,200	64	22		1,286	1
8442	X 19-1/2"				28	1.429		1,300	64	22		1,386	
8444	X 21"				27	1.481		1,400	66.50	22.50		1,489	
8446	X 22-1/2"				27	1.481		1,500	66.50	22.50		1,589	
8448	X 24"				27	1.481		1,600	66.50	22.50		1,689	
8450	X 25-1/2"				27	1.481		1,700	66.50	22.50		1,789	
8452	X 27"				26	1.538		1,800	69	23.50		1,892.50	
8454	X 28-1/2"				26	1.538		1,900	69	23.50		1,992.50	
8456	X 30"				26	1.538		2,000	69	23.50		2,092.50	

22 13 - Standard Pattern Wood Trim

22 13.15 Moldings, Base	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
MOLDINGS, BASE						Labor	Equipment		
Classic profile, 5/8" x 5-1/2", finger jointed and primed	1 Corp	250	.032	L.F.	1.26	1.41		2.67	3.55
Poplar		240	.033		1.39	1.47		2.86	3.79
Red oak		220	.036		1.99	1.60		3.59	4.66
Maple		220	.036		3.14	1.60		4.74	5.90
Cherry		220	.036		3.73	1.60		5.33	6.55
3/4 x 7-1/2", finger jointed and primed		250	.032		1.63	1.41		3.04	3.96
Poplar		240	.033		2.16	1.47		3.63	4.63
Red oak		220	.036		2.89	1.60		4.49	5.65
Maple		220	.036		4.18	1.60		5.78	7.05
Cherry		220	.036		4.98	1.60		6.58	7.95
Modern profile, 5/8" x 3-1/2", finger jointed and primed		250	.032		.86	1.41		2.27	3.11
Poplar		240	.033		.86	1.47		2.33	3.20
Red oak		220	.036		1.36	1.60		2.96	3.96
Maple		220	.036		2.20	1.60		3.80	4.89
Cherry		220	.036		2.38	1.60		3.98	5.10
Ogee profile, 7/16" x 3", finger jointed and primed		250	.032		.51	1.41		1.92	2.73
Poplar		240	.033		.56	1.47		2.03	2.87
Red oak		220	.036		.76	1.60		2.36	3.30
9/16" x 3-1/2", finger jointed and primed		250	.032		.51	1.41		1.92	2.73
Pine		240	.033		1.23	1.47		2.70	3.61
Red oak		220	.036		2.32	1.60		3.92	5
9/16" x 4-1/2", red oak		220	.036		3.47	1.60		5.07	6.30
5/8" x 3-1/2", finger jointed and primed		250	.032		.79	1.41		2.20	3.04
Poplar		240	.033		.86	1.47		2.33	3.20
Red oak		220	.036		1.36	1.60		2.96	3.96
Maple		220	.036		2.20	1.60		3.80	4.89
Cherry		220	.036		2.38	1.60		3.98	5.10
5/8" x 4", finger jointed and primed		250	.032		1.02	1.41		2.43	3.29
Poplar		240	.033		1.11	1.47		2.58	3.48
Red oak		220	.036		1.52	1.60		3.12	4.14
Maple		220	.036		2.46	1.60		4.06	5.15
Cherry		220	.036		2.58	1.60		4.18	5.30
Rectangular profile, oak, 3/8" x 1-1/4"		260	.031		1.36	1.36		2.72	3.59
1/2" x 2-1/2"		255	.031		1.91	1.38		3.29	4.23
1/2" x 3-1/2"		250	.032		2.31	1.41		3.72	4.71
1" x 6"		240	.033		2.77	1.47		4.24	5.30
1" x 8"		240	.033		3.68	1.47		5.15	6.30
Pine, 3/8" x 1-3/4"		260	.031		.52	1.36		1.88	2.66
7/16" x 2-1/2"		255	.031		.78	1.38		2.16	2.99
1" x 6"		240	.033		1.06	1.47		2.53	3.42
1" x 8"		240	.033		1.44	1.47		2.91	3.84
Shoe, 1/2" x 3/4", primed		260	.031		.43	1.36		1.79	2.56
Pine		240	.033		.30	1.47		1.77	2.59
Poplar		240	.033		.33	1.47		1.80	2.62
Red oak		220	.036		.44	1.60		2.04	2.95
Maple		220	.036		.61	1.60		2.21	3.14
Cherry		220	.036		.69	1.60		2.29	3.23
11/16" x 1-1/2", pine		240	.033		.68	1.47		2.15	3.01
Caps, 11/16" x 1-3/8", pine		240	.033		.74	1.47		2.21	3.07
3/4" x 1-3/4", finger jointed and primed		260	.031		.62	1.36		1.98	2.77
Poplar		240	.033		.87	1.47		2.34	3.22
Red oak		220	.036		1	1.60		2.60	3.57

06 22 Millwork

06 22 13 - Standard Pattern Wood Trim

06 22 13.15 Moldings, Base		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	To Incl
							Labor	Equipment		
5370	Maple	1 Corp	220	.036	L.F.	1.37	1.60		2.97	
5375	Cherry		220	.036		3.09	1.60		4.69	
5380	Combination base & shoe, 9/16" x 3-1/2" & 1/2" x 3/4", pine		125	.064		1.53	2.82		4.35	
5385	Three piece oak, 6" high		80	.100		4.21	4.41		8.62	
5390	Including 3/4" x 1" base shoe		70	.114		4.57	5.05		9.62	
5395	Flooring cont strip, 3/4" x 3/4", pre-finished pine		260	.031		.47	1.36		1.83	
5400	For pre-finished, stain and clear coat, odd					.40			.40	
5405	Clear coat only, odd					.35			.35	

06 22 13.30 Moldings, Casings

06 22 13.30 MOLDINGS, CASINGS		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	To Incl
0010	Apron, 9/16" x 2-1/2", pine	1 Corp	250	.032	L.F.	1.63	1.41		3.04	
0090	5/8" x 2-1/2", pine		250	.032		2.17	1.41		3.58	
0110	5/8" x 3-1/2", pine		220	.036		2.17	1.60		3.77	
0300	Bond, 11/16" x 1-1/8", pine		270	.030		1	1.31		2.31	
0310	11/16" x 1-1/2", finger jointed and primed		270	.030		.83	1.31		2.14	
0320	Pine		270	.030		1.06	1.31		2.37	
0330	11/16" x 1-3/4", finger jointed and primed		270	.030		.56	1.31		1.87	
0350	Pine		270	.030		1.25	1.31		2.56	
0355	Beaded, 3/4" x 3-1/2", finger jointed and primed		220	.036		1.02	1.60		2.62	
0360	Poplar		220	.036		.96	1.60		2.56	
0365	Red oak		220	.036		1.36	1.60		2.96	
0370	Maple		220	.036		2.20	1.60		3.80	
0375	Cherry		220	.036		2.67	1.60		4.27	
0380	3/4" x 4", finger jointed and primed		220	.036		1.02	1.60		2.62	
0385	Poplar		220	.036		1.24	1.60		2.84	
0390	Red oak		220	.036		1.67	1.60		3.27	
0395	Maple		220	.036		2.30	1.60		3.90	
0400	Cherry		220	.036		2.90	1.60		4.50	
0405	3/4" x 5-1/2", finger jointed and primed		200	.040		1.02	1.76		2.78	
0410	Poplar		200	.040		1.67	1.76		3.43	
0415	Red oak		200	.040		2.34	1.76		4.10	
0420	Maple		200	.040		3.23	1.76		4.99	
0425	Cherry		200	.040		3.71	1.76		5.47	
0430	Classic profile, 3/4" x 2-3/4", finger jointed and primed		250	.032		.68	1.41		2.09	
0435	Poplar		250	.032		.86	1.41		2.27	
0440	Red oak		250	.032		1.20	1.41		2.61	
0445	Maple		250	.032		1.80	1.41		3.21	
0450	Cherry		250	.032		2.05	1.41		3.46	
0455	Fluted, 3/4" x 3-1/2", poplar		220	.036		.96	1.60		2.56	
0460	Red oak		220	.036		1.36	1.60		2.96	
0465	Maple		220	.036		2.20	1.60		3.80	
0470	Cherry		220	.036		2.67	1.60		4.27	
0475	3/4" x 4", poplar		220	.036		1.24	1.60		2.84	
0480	Red oak		220	.036		3.02	1.60		4.62	
0485	Maple		220	.036		2.30	1.60		3.90	
0490	Cherry		220	.036		2.90	1.60		4.50	
0495	3/4" x 5-1/2", poplar		200	.040		1.67	1.76		3.43	
0500	Red oak		200	.040		2.34	1.76		4.10	
0505	Maple		200	.040		4.58	1.76		6.34	
0510	Cherry		200	.040		3.71	1.76		5.47	
0515	3/4" x 7-1/2", poplar		190	.042		1.38	1.86		3.24	
0520	Red oak		190	.042		3.24	1.86		5.10	

6 22 Millwork

6 22 13 - Standard Pattern Wood Trim

6 22 13.30 Moldings, Casings		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
5	Maple	1 Corp	190	.042	L.F.	4.89	1.86		6.75	8.25
0	Cherry		190	.042		5.85	1.86		7.71	9.25
5	3/4" x 9-1/2", paplar		180	.044		3.56	1.96		5.52	6.95
0	Red oak		180	.044		5.40	1.96		7.36	8.95
5	Maple		180	.044		7.75	1.96		9.71	11.55
0	Cherry		180	.044		8.45	1.96		10.41	12.30
0	Modern profile, 9/16" x 2-1/4", paplar		250	.032		.49	1.41		1.90	2.71
0	Red oak		250	.032		.64	1.41		2.05	2.87
5	11/16" x 2-1/2", finger jointed & primed		250	.032		.58	1.41		1.99	2.81
0	Pine		250	.032		1.33	1.41		2.74	3.63
5	3/4" x 2-1/2", paplar		250	.032		.76	1.41		2.17	3
0	Red oak		250	.032		.98	1.41		2.39	3.25
5	Maple		250	.032		1.55	1.41		2.96	3.87
0	Cherry		250	.032		1.96	1.41		3.37	4.32
5	Mullion, 5/16" x 2", pine		270	.030		.99	1.31		2.30	3.10
0	9/16" x 2-1/2", finger jointed and primed		250	.032		.60	1.41		2.01	2.83
5	Pine		250	.032		1.41	1.41		2.82	3.72
0	Red oak		250	.032		2.80	1.41		4.21	5.25
5	1-1/16" x 3-3/4", red oak		220	.036		6.85	1.60		8.45	9.95
0	Ogee, 7/16" x 2-1/2", paplar		250	.032		.44	1.41		1.85	2.65
5	Red oak		250	.032		.62	1.41		2.03	2.85
0	9/16" x 2-1/4", finger jointed and primed		250	.032		.44	1.41		1.85	2.65
5	Paplar		250	.032		.49	1.41		1.90	2.71
0	Red oak		250	.032		.64	1.41		2.05	2.87
5	11/16" x 2-1/2", finger jointed and primed		250	.032		.54	1.41		1.95	2.76
0	Pine		250	.032		1.32	1.41		2.73	3.62
5	11/16" x 3-1/2", finger jointed and primed		220	.036		1.82	1.60		3.42	4.47
0	Pine		220	.036		2.18	1.60		3.78	4.87
5	3/4" x 2-1/2", finger jointed and primed		250	.032		.62	1.41		2.03	2.85
0	Paplar		250	.032		.76	1.41		2.17	3
5	Red oak		250	.032		.98	1.41		2.39	3.25
0	Maple		250	.032		1.55	1.41		2.96	3.87
5	Cherry		250	.032		1.96	1.41		3.37	4.32
0	3/4" x 3-1/2", finger jointed and primed		220	.036		.87	1.60		2.47	3.43
5	Paplar		220	.036		.96	1.60		2.56	3.52
0	Red oak		220	.036		1.36	1.60		2.96	3.96
5	Maple		220	.036		2.20	1.60		3.80	4.89
0	Cherry		220	.036		2.67	1.60		4.27	5.40
0	Square profile, 1" x 1", teak		215	.037		2.01	1.64		3.65	4.73
0	Rectangular profile, 1" x 3", teak		200	.040		5.70	1.76		7.46	9

6 22 13.35 Moldings, Ceilings

MOLDINGS, CEILINGS		Crew	Daily Output	Labor-Hours	Unit	Material	Labor	Equipment	Total	Total Incl O&P
0	Bed, stock pine, 9/16" x 1-3/4"	1 Corp	270	.030	L.F.	1.19	1.31		2.50	3.32
5	9/16" x 2"		240	.033		1.42	1.47		2.89	3.82
0	Cornice molding, stock pine, 9/16" x 1-3/4"		330	.024		1.19	1.07		2.26	2.95
0	9/16" x 2-1/4"		300	.027		1.45	1.18		2.63	3.41
0	Cave scotia, stock pine, 9/16" x 1-3/4"		270	.030		1.11	1.31		2.42	3.23
0	11/16" x 2-3/4"		255	.031		2.18	1.38		3.56	4.53
0	Crown, stock pine, 9/16" x 3-5/8"		250	.032		2.68	1.41		4.09	5.10
0	11/16" x 4-5/8"		220	.036		4.52	1.60		6.12	7.45

06 22 Millwork

06 22 13 - Standard Pattern Wood Trim

06 22 13.40 Moldings, Exterior		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind Cost
0010	MOLDINGS, EXTERIOR									
1500	Cornice, boards, pine, 1" x 2"	1 Carp	330	.024	L.F.	.25	1.07		1.32	1
1700	1" x 6"		250	.032		.72	1.41		2.13	2
2000	1" x 12"		180	.044		1.63	1.96		3.59	4
2200	Three piece, built-up, pine, minimum		80	.100		1.38	4.41		5.79	8
2300	Maximum		65	.123		3.93	5.45		9.38	12
3000	Corner board, sterling pine, 1" x 4"		200	.040		.80	1.76		2.56	3
3100	1" x 6"		200	.040		1.06	1.76		2.82	3
3350	Fascia, sterling pine, 1" x 6"		250	.032		1.06	1.41		2.47	3
3370	1" x 8"		225	.036		1.44	1.57		3.01	3
3400	Trim, back band, 11/16" x 1-1/16"		250	.032		.98	1.41		2.39	3
3500	Casing, 11/16" x 4-1/4"		250	.032		3.20	1.41		4.61	5
3600	Crown, 11/16" x 4-1/4"		250	.032		4.50	1.41		5.91	7
3700	1" x 4" and 1" x 6" railing w/balusters 4" O.C.		22	.364		25.50	16.05		41.55	52
3800	Insect screen framing stock, 1-1/16" x 1-3/4"		395	.020		2.38	.89		3.27	3
4100	Verge board, sterling pine, 1" x 4"		200	.040		.80	1.76		2.56	3
4200	1" x 6"		200	.040		1.06	1.76		2.82	3
4300	2" x 6"		165	.048		2.12	2.14		4.26	5
4400	2" x 8"		165	.048		2.88	2.14		5.02	4
4700	For redwood trim, add					200%				

06 22 13.45 Moldings, Trim

0010	MOLDINGS, TRIM									
0200	Astragal, stock pine, 11/16" x 1-3/4"	1 Carp	255	.031	L.F.	1.41	1.38		2.79	3
0250	1-5/16" x 2-3/16"		240	.033		2.57	1.47		4.04	5
0800	Chair rail, stock pine, 5/8" x 2-1/2"		270	.030		1.68	1.31		2.99	3
0900	5/8" x 3-1/2"		240	.033		2.65	1.47		4.12	5
1000	Closest pole, stock pine, 1-1/8" diameter		200	.040		1.22	1.76		2.98	4
1100	Fir, 1-5/8" diameter		200	.040		2.36	1.76		4.12	5
3300	Half round, stock pine, 1/4" x 1/2"		270	.030		.31	1.31		1.62	2
3350	1/2" x 1"		255	.031		.73	1.38		2.11	2
3400	Handrail, fir, single piece, stock, hardware not included									
3450	1-1/2" x 1-3/4"	1 Carp	80	.100	L.F.	2.50	4.41		6.91	8
3470	Pine, 1-1/2" x 1-3/4"		80	.100		2.38	4.41		6.79	8
3500	1-1/2" x 2-1/2"		76	.105		2.67	4.64		7.31	10
3600	Lattice, stock pine, 1/4" x 1-1/8"		270	.030		.51	1.31		1.82	2
3700	1/4" x 1-3/4"		250	.032		.92	1.41		2.33	3
3800	Miscellaneous, custom, pine, 1" x 1"		270	.030		.38	1.31		1.69	2
3900	1" x 3"		240	.033		1.13	1.47		2.60	3
4100	Birch or oak, nominal 1" x 1"		240	.033		.47	1.47		1.94	2
4200	Nominal 1" x 3"		215	.037		1.40	1.64		3.04	4
4400	Walnut, nominal 1" x 1"		215	.037		.56	1.64		2.20	3
4500	Nominal 1" x 3"		200	.040		1.69	1.76		3.45	4
4700	Teak, nominal 1" x 1"		215	.037		2.47	1.64		4.11	5
4800	Nominal 1" x 3"		200	.040		7.40	1.76		9.16	10
4900	Quarter round, stock pine, 1/4" x 1/4"		275	.029		.31	1.28		1.59	2
4950	3/4" x 3/4"		255	.031		.70	1.38		2.08	2
5600	Wainscot moldings, 1-1/8" x 9/16", 2' high, minimum		76	.105	S.F.	11.55	4.64		16.19	19
5700	Maximum		65	.123	"	20.50	5.45		25.95	31

06 22 13.50 Moldings, Window and Door

0010	MOLDINGS, WINDOW AND DOOR									
2800	Door moldings, stock, decorative, 1-1/8" wide, plain	1 Carp	17	.471	Set	44.50	21		65.50	81
2900	Detailed		17	.471	"	87.50	21		108.50	129

6 22 Millwork

22 13 – Standard Pattern Wood Trim

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
22 13.50 Moldings, Window and Door									
Clear pine door jamb, no stops, 1 1/16" x 4-9/16"	1 Corp	240	.033	L.F.	4.73	1.47		6.20	7.45
Door trim set, 1 head and 2 sides, pine, 2-1/2 wide		12	.667	Opng.	22.50	29.50		52	69.50
3-1/2" wide		11	.727	"	37	32		69	90
Glass beads, stock pine, 3/8" x 1/2"		275	.029	L.F.	.38	1.28		1.66	2.39
3/8" x 7/8"		270	.030		.50	1.31		1.81	2.56
Parting bead, stock pine, 3/8" x 3/4"		275	.029		.45	1.28		1.73	2.47
1/2" x 3/4"		255	.031		.56	1.38		1.94	2.75
Staal caps, stock pine, 1 1/16" x 3-1/2"		200	.040		2.65	1.76		4.41	5.65
1-1/16" x 3-1/4"		150	.053	▼	4.15	2.35		6.50	8.20
Threshold, oak, 3' long, inside, 5/8" x 3-5/8"		32	.250	Eq.	9	11.05		20.05	27
Outside, 1-1/2" x 7-5/8"	▼	16	.500	"	38	22		60	76
Window trim sets, including casings, header, stops, taal and apron, 2-1/2" wide, minimum	1 Corp	13	.615	Opng.	34.50	27		61.50	79.50
Average		10	.800		40.50	35.50		76	99
Maximum	▼	6	1.333	▼	64.50	59		123.50	162

22 13.60 Moldings, Soffits

MOLDINGS, SOFFITS									
Soffits, pine, 1" x 4"	2 Corp	420	.038	L.F.	.41	1.68		2.09	3.04
1" x 6"		420	.038		.72	1.68		2.40	3.38
1" x 8"		420	.038		1	1.68		2.68	3.69
1" x 10"		400	.040		1.30	1.76		3.06	4.14
1" x 12"		400	.040		1.63	1.76		3.39	4.50
STK cedar, 1" x 4"		420	.038		.48	1.68		2.16	3.12
1" x 6"		420	.038		.83	1.68		2.51	3.50
1" x 8"		420	.038		1.29	1.68		2.97	4.01
1" x 10"		400	.040		1.99	1.76		3.75	4.90
1" x 12"		400	.040	▼	2.69	1.76		4.45	5.65
Exterior AC plywood, 1/4" thick		420	.038	S.F.	.62	1.68		2.30	3.27
3/8" thick		420	.038		.73	1.68		2.41	3.39
1/2" thick	▼	420	.038		.77	1.68		2.45	3.44
Polyvinyl chloride, white, solid	1 Corp	230	.035		2.04	1.53		3.57	4.60
Perforated	"	230	.035	▼	2.04	1.53		3.57	4.60

6 25 Prefinished Paneling

25 13 – Prefinished Hardboard Paneling

25 13.10 Paneling, Hardboard

PANELING, HARDBOARD									
Not incl. furring or trim, hardboard, tempered, 1/8" thick	G	2 Corp	500	.032	S.F.	.38	1.41	1.79	2.59
1/4" thick	G		500	.032		.55	1.41	1.96	2.78
Tempered pegboard, 1/8" thick	G		500	.032		.45	1.41	1.86	2.67
1/4" thick	G		500	.032		.64	1.41	2.05	2.87
Untempered hardboard, natural finish, 1/8" thick	G		500	.032		.38	1.41	1.79	2.59
1/4" thick	G		500	.032		.46	1.41	1.87	2.68
Untempered pegboard, 1/8" thick	G		500	.032		.39	1.41	1.80	2.60
1/4" thick	G		500	.032		.42	1.41	1.83	2.63
Plastic faced hardboard, 1/8" thick	G		500	.032		.68	1.41	2.09	2.92
1/4" thick	G		500	.032		.84	1.41	2.25	3.09
Plastic faced pegboard, 1/8" thick	G		500	.032		.62	1.41	2.03	2.85
1/4" thick	G		500	.032		.74	1.41	2.15	2.98
Wood grained, plain or grooved, 1/4" thick, minimum	G		500	.032		.58	1.41	1.99	2.81
Maximum	G	▼	425	.038	▼	1.12	1.66	2.78	3.78

06 25 Prefinished Paneling

06 25 13 – Prefinished Hardboard Paneling

06 25 13.10 Paneling, Hardboard		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind Cost
							Labor	Equipment		
2100	Moldings for hardboard, wood or aluminum, minimum	2 Carp	500	.032	L.F.	.39	1.41		1.80	
2200	Maximum		425	.038	"	1.09	1.66		2.75	

06 25 16 – Prefinished Plywood Paneling

06 25 16.10 Paneling, Plywood

0010	PANELING, PLYWOOD									
2400	Plywood, prefinished, 1/4" thick, 4' x 8' sheets									
2410	with vertical grooves. Birch faced, minimum	2 Carp	500	.032	S.F.	.90	1.41		2.31	
2420	Average		420	.038		1.36	1.68		3.04	
2430	Maximum		350	.046		1.99	2.02		4.01	
2600	Mahogany, African		400	.040		2.54	1.76		4.30	
2700	Philippine (Lauan)		500	.032		1.09	1.41		2.50	
2900	Oak or Cherry, minimum		500	.032		2.12	1.41		3.53	
3000	Maximum		400	.040		3.25	1.76		5.01	
3200	Rosewood		320	.050		4.63	2.21		6.84	
3400	Teak		400	.040		3.25	1.76		5.01	
3600	Chestnut		375	.043		4.82	1.88		6.70	
3800	Pecan		400	.040		2.08	1.76		3.84	
3900	Walnut, minimum		500	.032		2.78	1.41		4.19	
3950	Maximum		400	.040		5.25	1.76		7.01	
4000	Plywood, prefinished, 3/4" thick, stock grades, minimum		320	.050		1.25	2.21		3.46	
4100	Maximum		224	.071		5.45	3.15		8.60	
4300	Architectural grade, minimum		224	.071		4.02	3.15		7.17	
4400	Maximum		160	.100		6.15	4.41		10.56	
4600	Plywood, "A" face, birch, V.C., 1/2" thick, natural		450	.036		1.91	1.57		3.48	
4700	Select		450	.036		2.08	1.57		3.65	
4900	Veneer core, 3/4" thick, natural		320	.050		2.01	2.21		4.22	
5000	Select		320	.050		2.25	2.21		4.46	
5200	Lumber core, 3/4" thick, natural		320	.050		3.02	2.21		5.23	
5500	Plywood, knotty pine, 1/4" thick, A2 grade		450	.036		1.65	1.57		3.22	
5600	A3 grade		450	.036		2.08	1.57		3.65	
5800	3/4" thick, veneer core, A2 grade		320	.050		2.13	2.21		4.34	
5900	A3 grade		320	.050		2.40	2.21		4.61	
6100	Aromatic cedar, 1/4" thick, plywood		400	.040		2.10	1.76		3.86	
6200	1/4" thick, particle board		400	.040		1.02	1.76		2.78	

06 25 26 – Panel System

06 25 26.10 Panel Systems

0010	PANEL SYSTEMS									
0100	Raised panel, eng. wood core w/wood veneer, std., paint grade	2 Carp	300	.053	S.F.	12.20	2.35		14.55	
0110	Oak veneer		300	.053		20	2.35		22.35	
0120	Maple veneer		300	.053		24.50	2.35		26.85	
0130	Cherry veneer		300	.053		29	2.35		31.35	
0300	Class I fire rated, paint grade		300	.053		14.25	2.35		16.60	
0310	Oak veneer		300	.053		23.50	2.35		25.85	
0320	Maple veneer		300	.053		30	2.35		32.35	
0330	Cherry veneer		300	.053		38.50	2.35		40.85	
0510	Beadboard, 5/8" MDF, standard, primed		300	.053		6.60	2.35		8.95	
0520	Oak veneer, unfinished		300	.053		10.05	2.35		12.40	
0530	Maple veneer, unfinished		300	.053		11.20	2.35		13.55	
0610	Rustic paneling, 5/8" MDF, standard, maple veneer, unfinished		300	.053		12.70	2.35		15.05	

6 26 Board Paneling

26 13 – Profile Board Paneling

26 13.10 Paneling, Boards		Daily	Labor-			2012 Bare Costs			Total
PANELING, BOARDS		Crew	Output	Hours	Unit	Material	Labor	Equipment	Incl O&P
Wood board paneling, 3/4" thick, knotty pine	2 Carp	300	.053	S.F.	1.89	2.35			5.70
Rough sawn cedar		300	.053		2.86	2.35			6.75
Redwood, clear, 1" x 4" boards		300	.053		4.96	2.35			9.05
Aromatic cedar, closet lining, boards	▼	275	.058	▼	2	2.57			6.15

6 43 Wood Stairs and Railings

43 13 – Wood Stairs

43 13.20 Prefabricated Wood Stairs

PREFABRICATED WOOD STAIRS									
Box stairs, prefabricated, 3'-0" wide									
Oak treads, up to 14 risers	2 Carp	39	.410	Riser	92.50	18.10			130
With pine treads for carpet, up to 14 risers	"	39	.410	"	59.50	18.10			93.50
For 4' wide stairs, add				Flight	25%				
Stairs, prefabricated stair handrail with balusters	1 Carp	30	.267	L.F.	75	11.75			100
Basement stairs, prefabricated, pine treads									
Pine risers, 3' wide, up to 14 risers	2 Carp	52	.308	Riser	59.50	13.55			86.50
Residential, wood, oak treads, prefabricated		1.50	10.667	Flight	1,200	470			2,050
Built in place	▼	.44	36.364	"	1,800	1,600			4,450
Spiral, oak, 4'-6" diameter, unfinished, prefabricated, incl. railing, 9' high	2 Carp	1.50	10.667	Flight	3,625	470			4,700

43 13.40 Wood Stair Parts

WOOD STAIR PARTS									
Pin top balusters, 1-1/4", oak, 34"	1 Carp	96	.083	Ea.	7.80	3.67			14.25
38"		96	.083		9.85	3.67			16.50
42"		96	.083		12.10	3.67			18.95
Poplar, 34"		96	.083		3.05	3.67			9
38"		96	.083		3.62	3.67			9.65
42"		96	.083		8.55	3.67			15.10
Maple, 34"		96	.083		4.90	3.67			11.05
38"		96	.083		6.20	3.67			12.45
42"		96	.083		7.60	3.67			14
Primed, 34"		96	.083		2.85	3.67			8.80
38"		96	.083		3.62	3.67			9.65
42"		96	.083		4.42	3.67			10.50
Box top balusters, 1-1/4", oak, 34"		60	.133		10.85	5.90			21
38"		60	.133		12.50	5.90			23
42"		60	.133		12.95	5.90			23.50
Poplar, 34"		60	.133		8.65	5.90			18.55
38"		60	.133		9.50	5.90			19.50
42"		60	.133		10	5.90			20
Maple, 34"		60	.133		11.90	5.90			22
38"		60	.133		13.80	5.90			24.50
42"		60	.133		14.20	5.90			24.50
Primed, 34"		60	.133		6.95	5.90			16.70
38"		60	.133		8	5.90			17.85
42"		60	.133	▼	8.35	5.90			18.25
Square balusters, cut from lineal stock, pine, 1-1/16" x 1-1/16"		180	.044	L.F.	1.32	1.96			4.47
1-5/16" x 1-5/16"		180	.044		1.70	1.96			4.89
1-5/8" x 1-5/8"		180	.044	▼	2.82	1.96			6.10
Turned newel, oak, 3-1/2" square, 48" high	▼	8	1	Ea.	94.50	44			172

06 43 Wood Stairs and Railings

06 43 13 – Wood Stairs

06 43 13.40 Wood Stair Parts		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind Cost
							Labor	Equipment		
0380	62" high	1 Corp	8	1	Eq.	138	44		182	22
0390	Poplar, 3-1/2" square, 48" high		8	1		52	44		96	12
0400	62" high		8	1		75	44		119	15
0410	Maple, 3-1/2" square, 48" high		8	1		66	44		110	14
0420	62" high		8	1		93	44		137	17
0430	Square newel, oak, 3-1/2" square, 48" high		8	1		50	44		94	12
0440	58" high		8	1		70	44		114	14
0450	Poplar, 3-1/2" square, 48" high		8	1		49	44		93	12
0460	58" high		8	1		54	44		98	12
0470	Maple, 3" square, 48" high		8	1		50	44		94	12
0480	58" high		8	1		62	44		106	13
0490	Railings, oak, minimum		96	.083	L.F.	10.40	3.67		14.07	17
0500	Average		96	.083		12.50	3.67		16.17	19
0510	Maximum		96	.083		15.50	3.67		19.17	23
0520	Maple, minimum		96	.083		15	3.67		18.67	22
0530	Average		96	.083		15.25	3.67		18.92	22
0540	Maximum		96	.083		15.50	3.67		19.17	22
0550	Oak, for bending rail, minimum		48	.167		21	7.35		28.35	34
0560	Average		48	.167		22	7.35		29.35	35
0570	Maximum		48	.167		23	7.35		30.35	37
0580	Maple, for bending rail, minimum		48	.167		23	7.35		30.35	37
0590	Average		48	.167		25	7.35		32.35	39
0600	Maximum		48	.167		27	7.35		34.35	41
0610	Risers, oak, 3/4" x 8", 36" long		80	.100	Eq.	18	4.41		22.41	26
0620	42" long		80	.100		21	4.41		25.41	30
0630	48" long		80	.100		24	4.41		28.41	33
0640	54" long		80	.100		27	4.41		31.41	36
0650	60" long		80	.100		30	4.41		34.41	40
0660	72" long		80	.100		36	4.41		40.41	47
0670	Poplar, 3/4" x 8", 36" long		80	.100		11.10	4.41		15.51	19
0680	42" long		80	.100		12.95	4.41		17.36	21
0690	48" long		80	.100		14.80	4.41		19.21	23
0700	54" long		80	.100		16.65	4.41		21.06	25
0710	60" long		80	.100		18.50	4.41		22.91	27
0720	72" long		80	.100		22	4.41		26.41	31
0730	Pine, 1" x 8", 36" long		80	.100		3	4.41		7.41	8
0740	42" long		80	.100		3.50	4.41		7.91	9
0750	48" long		80	.100		4	4.41		8.41	10
0760	54" long		80	.100		4.50	4.41		8.91	11
0770	60" long		80	.100		5	4.41		9.41	11
0780	72" long		80	.100		6	4.41		10.41	12
0790	Treads, oak, no returns, 1-1/32" x 11-1/2" x 36" long		32	.250		32	11.05		43.05	52
0800	42" long		32	.250		37.50	11.05		48.55	58
0810	48" long		32	.250		42.50	11.05		53.55	64
0820	54" long		32	.250		48	11.05		59.05	70
0830	60" long		32	.250		53.50	11.05		64.55	75
0840	72" long		32	.250		64	11.05		75.05	87
0850	Mitred return one end, 1-1/32" x 11-1/2" x 36" long		24	.333		46	14.70		60.70	73
0860	42" long		24	.333		53.50	14.70		68.20	81
0870	48" long		24	.333		61.50	14.70		76.20	90
0880	54" long		24	.333		69	14.70		83.70	99
0890	60" long		24	.333		76.50	14.70		91.20	107
0900	72" long		24	.333		92	14.70		106.70	124

6 43 Wood Stairs and Railings

43 13 – Wood Stairs

43 13.40 Wood Stair Parts	Crew	Doily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Incl O&P
Mitred return two ends, 1-1/32" x 11-1/2" x 36" long	1 Corp	12	.667	Ea.	49	29.50		78.50	99
42" long		12	.667		57	29.50		86.50	108
48" long		12	.667		65.50	29.50		95	117
54" long		12	.667		73.50	29.50		103	126
60" long		12	.667		81.50	29.50		111	135
72" long		12	.667		98	29.50		127.50	153
Starting step, oak, 48", bullnose		8	1		192	44		236	279
Double end bullnose		8	1		345	44		389	450
Skirt board, pine, 1" x 10"		55	.145	L.F.	1.30	6.40		7.70	11.30
1" x 12"		52	.154	"	1.63	6.80		8.43	12.25
Oak landing tread, 1-1/16" thick		54	.148	S.F.	8.25	6.55		14.80	19.15
Oak cove molding		96	.083	L.F.	1.45	3.67		5.12	7.25
Oak stringer molding		96	.083	"	2.75	3.67		6.42	8.70
Rail balr, 5/16" x 3-1/2"		48	.167	Ea.	2.75	7.35		10.10	14.35
5/16" x 4-1/2"		48	.167		2.75	7.35		10.10	14.35
Newel post anchor		16	.500		13.50	22		35.50	49
Tapered plug, 1/2"		240	.033		.30	1.47		1.77	2.59
1"		240	.033		.40	1.47		1.87	2.70

43 16 – Wood Railings

43 16.10 Wood Handrails and Railings

WOOD HANDRAILS AND RAILINGS	Crew	Doily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Incl O&P
Custom design, architectural grade, hardwood, minimum	1 Corp	38	.211	L.F.	9.50	9.30		18.80	25
Maximum		30	.267		50	11.75		61.75	73
Stock interior railing with spindles 4" O.C., 4' long		40	.200		32.50	8.80		41.30	49
8' long		48	.167		32.50	7.35		39.85	47

6 44 Ornamental Woodwork

44 19 – Wood Grilles

44 19.10 Grilles

GRILLES and panels, hardwood, sanded	Crew	Doily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Incl O&P
2' x 4' to 4' x 8', custom designs, unfinished, minimum	1 Corp	38	.211	S.F.	56	9.30		65.30	76.50
Average		30	.267		65	11.75		76.75	89.50
Maximum		19	.421		74	18.55		92.55	110

44 33 – Wood Mantels

44 33.10 Fireplace Mantels

FIREPLACE MANTELS	Crew	Doily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Incl O&P
6" molding, 6' x 3'-6" opening, minimum	1 Corp	5	1.600	Opng.	228	70.50		298.50	360
Maximum		5	1.600		410	70.50		480.50	565
Prefabricated pine, colonial type, stock, deluxe		2	4		1,250	176		1,426	1,675
Economy		3	2.667		530	118		648	765

44 33.20 Fireplace Mantel Beam

FIREPLACE MANTEL BEAM	Crew	Doily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Incl O&P
Rough texture wood, 4" x 8"	1 Corp	36	.222	L.F.	8.30	9.80		18.10	24
4" x 10"		35	.229	"	10.90	10.10		21	27.50
Laminated hardwood, 2-1/4" x 10-1/2" wide, 6' long		5	1.600	Ea.	110	70.50		180.50	230
8' long		5	1.600	"	150	70.50		220.50	274
Brackets far above, rough sawn		12	.667	Pt.	10	29.50		39.50	56
Laminated		12	.667	"	15	29.50		44.50	61.50

06 44 Ornamental Woodwork

06 44 39 – Wood Posts and Columns

06 44 39.10 Decorative Beams		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Ind C
							Labor	Equipment		
0010	DECORATIVE BEAMS									
0020	Rough sawn cedar, non-load bearing, 4" x 4"	2 Corp	180	.089	L.F.	1.45	3.92		5.37	
0100	4" x 6"		170	.094		2.18	4.15		6.33	
0200	4" x 8"		160	.100		2.90	4.41		7.31	
0300	4" x 10"		150	.107		4.27	4.70		8.97	
0400	4" x 12"		140	.114		5.65	5.05		10.70	
0500	8" x 8"		130	.123		5.80	5.45		11.25	

06 44 39.20 Columns

0010	COLUMNS									
0050	Aluminum, round colonial, 6" diameter	2 Corp	80	.200	V.L.F.	18.60	8.80		27.40	
0100	8" diameter		62.25	.257		21.50	11.35		32.85	
0200	10" diameter		55	.291		25.50	12.85		38.35	
0250	Fir, stock units, hollow round, 6" diameter		80	.200		20.50	8.80		29.30	
0300	8" diameter		80	.200		24	8.80		32.80	
0350	10" diameter		70	.229		33.50	10.10		43.60	
0400	Solid turned, to 8' high, 3-1/2" diameter		80	.200		9	8.80		17.80	
0500	4-1/2" diameter		75	.213		14	9.40		23.40	
0600	5-1/2" diameter		70	.229		18.40	10.10		28.50	
0800	Square columns, built-up, 5" x 5"		65	.246		15.50	10.85		26.35	
0900	Solid, 3-1/2" x 3-1/2"		130	.123		9	5.45		14.45	
1600	Hemlock, tapered, T & G, 12" diam., 10' high		100	.160		34.50	7.05		41.55	
1700	16' high		65	.246		65.50	10.85		76.35	
1900	10' high, 14" diameter		100	.160		97	7.05		104.05	
2000	18" high		65	.246		88	10.85		98.85	
2200	18" diameter, 12' high		65	.246		141	10.85		151.85	
2300	20' high		50	.320		109	14.10		123.10	
2500	20" diameter, 14' high		40	.400		159	17.65		176.65	
2600	20' high		35	.457		173	20		193	
2800	For flat pilasters, deduct					33%				
3000	For splitting into halves, add					105			105	
4000	Rough sawn cedar posts, 4" x 4"	2 Corp	250	.064	V.L.F.	3.32	2.82		6.14	
4100	4" x 6"		235	.068		6	3		9	
4200	6" x 6"		220	.073		10.30	3.21		13.51	
4300	8" x 8"		200	.080		20	3.53		23.53	

06 48 Wood Frames

06 48 13 – Exterior Wood Door Frames

06 48 13.10 Exterior Wood Door Frames and Accessories

0010	EXTERIOR WOOD DOOR FRAMES AND ACCESSORIES									
0400	Exterior frame, incl. ext. trim, pine, 5/4 x 4-9/16" deep	2 Corp	375	.043	L.F.	5.55	1.88		7.43	
0420	5-3/16" deep		375	.043		8.85	1.88		10.73	
0440	6-9/16" deep		375	.043		7.70	1.88		9.58	
0600	Oak, 5/4 x 4-9/16" deep		350	.046		11.70	2.02		13.72	
0620	5-3/16" deep		350	.046		12.90	2.02		14.92	
0640	6-9/16" deep		350	.046		15.30	2.02		17.32	
1000	Sills, 8/4 x 8" deep, oak, no horns		100	.160		4.75	7.05		11.80	
1020	2" horns		100	.160		17.10	7.05		24.15	
1040	3" horns		100	.160		17.10	7.05		24.15	
1100	8/4 x 10" deep, oak, no horns		90	.178		5.30	7.85		13.15	
1120	2" horns		90	.178		21	7.85		28.85	

48 Wood Frames

48 13 – Exterior Wood Door Frames

48 13.10 Exterior Wood Door Frames and Accessories	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
3" horns	2 Corp	90	.178	L.F.	21	7.85		28.85	35.50
Exterior, colonial, frame & trim, 3' opng., in-swing, minimum		22	.727	Eo.	330	32		362	415
Average		21	.762		525	33.50		558.50	625
Maximum		20	.800		1,125	35.50		1,160.50	1,300
5'-4" opening, in-swing, minimum		17	.941		395	41.50		436.50	500
Maximum		15	1.067		1,125	47		1,172	1,325
Out-swing, minimum		17	.941		395	41.50		436.50	500
Maximum		15	1.067		1,125	47		1,172	1,325
6'-0" opening, in-swing, minimum		16	1		395	44		439	505
Maximum		10	1.600		1,125	70.50		1,195.50	1,350
Out-swing, minimum		16	1		395	44		439	505
Maximum		10	1.600		1,125	70.50		1,195.50	1,350
For two sidelights, odd, minimum		30	.533	Opng.	64	23.50		87.50	107
Maximum		20	.800	"	795	35.50		830.50	930
Custom birch frame, 3'-0" opening		16	1	Eo.	220	44		264	310
6'-0" opening		16	1		330	44		374	435
Exterior, modern, plain trim, 3' opng., in-swing, minimum		26	.615		38.50	27		65.50	84.50
Average		24	.667		46	29.50		75.50	95.50
Maximum		22	.727		55	32		87	110

48 16 – Interior Wood Door Frames

48 16.10 Interior Wood Door Jamb and Frames

INTERIOR WOOD DOOR JAMB AND FRAMES	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Interior frame, pine, 11/16" x 3-5/8" deep	2 Corp	375	.043	L.F.	5.10	1.88		6.98	8.50
4-9/16" deep		375	.043		5.95	1.88		7.83	9.45
Oak, 11/16" x 3-5/8" deep		350	.046		7.90	2.02		9.92	11.80
4-9/16" deep		350	.046		7.90	2.02		9.92	11.80
5-3/16" deep		350	.046		11.85	2.02		13.87	16.15
Walnut, 11/16" x 3-5/8" deep		350	.046		8.25	2.02		10.27	12.20
4-9/16" deep		350	.046		9	2.02		11.02	13
5-3/16" deep		350	.046		9	2.02		11.02	13
Pocket door frame		16	1	Eo.	74.50	44		118.50	150
Threshold, oak, 5/8" x 3-5/8" deep		200	.080	L.F.	3.56	3.53		7.09	9.35
4-5/8" deep		190	.084		4.13	3.71		7.84	10.25
5-5/8" deep		180	.089		6.50	3.92		10.42	13.20

49 Wood Screens and Exterior Wood Shutters

49 19 – Exterior Wood Shutters

49 19.10 Shutters, Exterior

SHUTTERS, EXTERIOR	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Aluminum, louvered, 1'-4" wide, 3'-0" long	1 Corp	10	.800	Pr.	62	35.50		97.50	123
6'-8" long		9	.889		124	39		163	198
Pine, louvered, primed, each 1'-2" wide, 3'-3" long		10	.800		107	35.50		142.50	173
4'-7" long		10	.800		145	35.50		180.50	214
Each 1'-6" wide, 3'-3" long		10	.800		114	35.50		149.50	180
4'-7" long		10	.800		160	35.50		195.50	231
Hemlock, louvered, 1'-2" wide, 5'-7" long		10	.800		175	35.50		210.50	248
Each 1'-4" wide, 2'-2" long		10	.800		110	35.50		145.50	175
4'-3" long		10	.800		131	35.50		166.50	199
5'-11" long		10	.800		185	35.50		220.50	258
Door blinds, 6'-9" long, each 1'-3" wide		9	.889		186	39		225	265

06 49 Wood Screens and Exterior Wood Shutters

06 49 19 – Exterior Wood Shutters

06 49 19.10 Shutters, Exterior		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	To Ind
							Labor	Equipment		
1710	1'-6" wide	1 Corp	9	.889	Pr.	200	39		239	2
1720	Hemlock, solid raised panel, each 1'-4" wide, 3'-3" long		10	.800		177	35.50		212.50	2
1740	4'-3" long		10	.800		224	35.50		259.50	3
1770	5'-11" long		10	.800		300	35.50		335.50	3
1800	Door blinds, 6'-9" long, each 1'-3" wide		9	.889		335	39		374	4
1900	1'-6" wide		9	.889		370	39		409	4
2500	Polystyrene, solid raised panel, each 1'-4" wide, 3'-3" long		10	.800		41.50	35.50		77	1
2700	4'-7" long		10	.800		52	35.50		87.50	1
4500	Polystyrene, louvered, each 1'-2" wide, 3'-3" long		10	.800		28	35.50		63.50	
4750	5'-3" long		10	.800		40	35.50		75.50	
6000	Vinyl, louvered, each 1'-2" x 4'-7" long		10	.800		34.50	35.50		70	
6200	Each 1'-4" x 6'-8" long		9	.889		48.50	39		87.50	1

06 51 Structural Plastic Shapes and Plates

06 51 13 – Plastic Lumber

06 51 13.10 Recycled Plastic Lumber

06 51 13.10 RECYCLED PLASTIC LUMBER										
4000	Sheeting, recycled plastic, black or white, 4' x 8' x 1/8"	G	2 Corp	1100	.015	S.F.	1.56	.64	2.20	
4010	4' x 8' x 3/16"	G		1100	.015		2.25	.64	2.89	
4020	4' x 8' x 1/4"	G		950	.017		2.79	.74	3.53	
4030	4' x 8' x 3/8"	G		950	.017		3.89	.74	4.63	
4040	4' x 8' x 1/2"	G		900	.018		4.99	.78	5.77	
4050	4' x 8' x 5/8"	G		900	.018		7	.78	7.78	
4060	4' x 8' x 3/4"	G		850	.019		8.50	.83	9.33	
4070	Add for colors	G				Ea.	5%		5%	
8500	100% recycled plastic, var colors, NLB, 2" x 2"	G				L.F.	1.62		1.62	
8510	2" x 4"	G					3.38		3.38	
8520	2" x 6"	G					5.30		5.30	
8530	2" x 8"	G					7.25		7.25	
8540	2" x 10"	G					10.60		10.60	
8550	5/4" x 4"	G					3.38		3.38	
8560	5/4" x 6"	G					2.99		2.99	
8570	1" x 6"	G					2.58		2.58	
8580	1/2" x 8"	G					2.82		2.82	
8590	2" x 10" T & G	G					7.60		7.60	
8600	3" x 10" T & G	G					12.25		12.25	
8610	Add for premium colors	G					20%		20%	2

06 52 Plastic Structural Assemblies

06 52 10 – Fiberglass Structural Assemblies

06 52 10.10 Castings, Fiberglass

06 52 10.10 CASTINGS, FIBERGLASS										
0100			2 Sswk	240	.067	L.F.	1.44	3.29	4.73	
0100	Angle, 1" x 1" x 1/8" thick			200	.080		6	3.95	9.95	1
0120	3" x 3" x 1/4" thick			200	.080		7.70	3.95	11.65	1
0140	4" x 4" x 1/4" thick			200	.080		11.85	3.95	15.80	2
0160	4" x 4" x 3/8" thick			160	.100		23.50	4.94	28.44	3
0180	6" x 6" x 1/2" thick			140	.114	S.F.	5.05	5.65	10.70	1
1000	Flat sheet, 1/8" thick			120	.133		9.90	6.60	16.50	2
1020	1/4" thick									

52 Plastic Structural Assemblies

52 10 – Fiberglass Structural Assemblies

52 10.10 Castings, Fiberglass		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	Bare Costs Equipment	Total	Total Incl O&P
	3/8" thick	2 Sswk	100	.160	S.F.	16.85	7.90		24.75	32.50
	1/2" thick		80	.200	▼	22	9.85		31.85	42
	Handrail, 42" high, 2" diam. rails pickets 5' O.C.		32	.500	L.F.	51	24.50		75.50	100
	Round bar, 1/4" diam.		240	.067		.58	3.29		3.87	6.55
	1/2" diam.		200	.080		1.01	3.95		4.96	8.15
	3/4" diam.		200	.080		2.05	3.95		6	9.30
	1" diam.		160	.100		3.62	4.94		8.56	12.85
	1-1/4" diam.		160	.100		4.13	4.94		9.07	13.40
	1-1/2" diam.		140	.114		5.05	5.65		10.70	15.65
	Round tube, 1" diam. x 1/8" thick		240	.067		1.97	3.29		5.26	8.05
	2" diam. x 1/4" thick		200	.080		6.35	3.95		10.30	14.05
	3" diam. x 1/4" thick		160	.100		10.10	4.94		15.04	19.95
	Square bar, 1/2" square		240	.067		3.98	3.29		7.27	10.30
	1" square		200	.080		5.10	3.95		9.05	12.65
	1-1/2" square		160	.100		10.40	4.94		15.34	20.50
	Square tube, 1" x 1" x 1/8" thick		240	.067		2.24	3.29		5.53	8.35
	2" x 2" x 1/8" thick		200	.080		4.34	3.95		8.29	11.80
	3" x 3" x 1/4" thick		160	.100		11.85	4.94		16.79	22
	Threaded rod, 3/8" diam.		320	.050		3.45	2.47		5.92	8.20
	1/2" diam.		320	.050		4.06	2.47		6.53	8.90
	5/8" diam.		280	.057		4.49	2.82		7.31	10
	3/4" diam.		280	.057		5.10	2.82		7.92	10.65
	Wide flange beam, 4" x 4" x 1/4" thick		120	.133		10.55	6.60		17.15	23.50
	6" x 6" x 1/4" thick		100	.160		19.95	7.90		27.85	36
	8" x 8" x 3/8" thick	▼	80	.200	▼	35	9.85		44.85	56

52 10.20 Fiberglass Stair Treads

FIBERGLASS STAIR TREADS		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	Bare Costs Equipment	Total	Total Incl O&P
	24" wide	2 Sswk	52	.308	Ea.	39.50	15.20		54.70	70.50
	30" wide		52	.308		47	15.20		62.20	79
	36" wide		52	.308		55.50	15.20		70.70	88
	42" wide	▼	52	.308	▼	65.50	15.20		80.70	99

52 10.30 Fiberglass Grating

FIBERGLASS GRATING		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	Bare Costs Equipment	Total	Total Incl O&P
Molded, green (for mod. corrosive environment)										
	1" x 4" mesh, 1" thick	2 Sswk	400	.040	S.F.	11.15	1.97		13.12	15.85
	1-1/2" square mesh, 1" thick		400	.040		16.60	1.97		18.57	22
	1-1/4" thick		400	.040		13.25	1.97		15.22	18.15
	1-1/2" thick		400	.040		24	1.97		25.97	30
	2" square mesh, 2" thick	▼	320	.050	▼	22.50	2.47		24.97	29.50
Orange (for highly corrosive environment)										
	1" x 4" mesh, 1" thick	2 Sswk	400	.040	S.F.	14.05	1.97		16.02	19
	1-1/2" square mesh, 1" thick		400	.040		18.60	1.97		20.57	24
	1-1/4" thick		400	.040		19.30	1.97		21.27	25
	1-1/2" thick		400	.040		21	1.97		22.97	26.50
	2" square mesh, 2" thick	▼	320	.050	▼	25	2.47		27.47	32
Pultruded, green (for mod. corrosive environment)										
	1" O.C. bar spacing, 1" thick	2 Sswk	400	.040	S.F.	16.65	1.97		18.62	22
	1-1/2" thick		320	.050		18.50	2.47		20.97	25
	1-1/2" O.C. bar spacing, 1" thick		400	.040		13.50	1.97		15.47	18.40
	1-1/2" thick	▼	400	.040	▼	15.15	1.97		17.12	20
	Grating support legs, fixed height, no base				Ea.	43.50			43.50	48
	With base				▼	39			39	43

06 52 Plastic Structural Assemblies

06 52 10 – Fiberglass Structural Assemblies

06 52 10.30 Fiberglass Grating		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind
							Labor	Equipment		
4080	Adjustable to 60"				Ea.	59			59	62
06 52 10.40 Fiberglass Floor Grating										
0010	FIBERGLASS FLOOR GRATING									
0100	Reinforced polyester, fire retardant, 1" x 4" grid, 1" thick	E-4	510	.063	S.F.	14.25	3.13	.24	17.62	21
0200	1-1/2" x 6" mesh, 1-1/2" thick		500	.064		16.65	3.19	.24	20.08	24
0300	With grit surface, 1-1/2" x 6" grid, 1-1/2" thick		500	.064		17	3.19	.24	20.43	24

06 63 Plastic Railings

06 63 10 – Plastic (PVC) Railings

06 63 10.10 Plastic Railings

0010	PLASTIC RAILINGS									
0100	Horizontal PVC handrail with balusters, 3-1/2" wide, 36" high	1 Corp	96	.083	L.F.	23.50	3.67		27.17	31
0150	42" high		96	.083		26	3.67		29.67	34
0200	Angled PVC handrail with balusters, 3-1/2" wide, 36" high		72	.111		26.50	4.90		31.40	36
0250	42" high		72	.111		29.50	4.90		34.40	40
0300	Post sleeve for 4 x 4 post		96	.083		12.05	3.67		15.72	18
0400	Post cap for 4 x 4 post, flat profile		48	.167	Ea.	10.40	7.35		17.75	22
0450	Newel post style profile		48	.167		21	7.35		28.35	34
0500	Raised carbeled profile		48	.167		23	7.35		30.35	36
0550	Post base trim for 4 x 4 post		96	.083		11.50	3.67		15.17	18

06 65 Plastic Simulated Wood Trim

06 65 10 – PVC Trim

06 65 10.10 PVC Trim, Exterior

0010	PVC TRIM, EXTERIOR									
0100	Cornerboards, 5/4" x 6" x 6"	1 Corp	240	.033	L.F.	11.10	1.47		12.57	14
0110	Door/window casing, 1" x 4"		200	.040		1.31	1.76		3.07	4
0120	1" x 6"		200	.040		2.06	1.76		3.82	4
0130	1" x 8"		195	.041		2.72	1.81		4.53	5
0140	1" x 10"		195	.041		3.45	1.81		5.26	6
0150	1" x 12"		190	.042		4.21	1.86		6.07	7
0160	5/4" x 4"		195	.041		1.68	1.81		3.49	4
0170	5/4" x 6"		195	.041		2.65	1.81		4.46	5
0180	5/4" x 8"		190	.042		3.47	1.86		5.33	6
0190	5/4" x 10"		190	.042		4.43	1.86		6.29	7
0200	5/4" x 12"		185	.043		4.85	1.91		6.76	8
0210	Fascio, 1" x 4"		250	.032		1.31	1.41		2.72	3
0220	1" x 6"		250	.032		2.06	1.41		3.47	4
0230	1" x 8"		225	.036		2.72	1.57		4.29	5
0240	1" x 10"		225	.036		3.45	1.57		5.02	6
0250	1" x 12"		200	.040		4.21	1.76		5.97	7
0260	5/4" x 4"		240	.033		1.68	1.47		3.15	4
0270	5/4" x 6"		240	.033		2.65	1.47		4.12	5
0280	5/4" x 8"		215	.037		3.47	1.64		5.11	6
0290	5/4" x 10"		215	.037		4.43	1.64		6.07	7
0300	5/4" x 12"		190	.042		4.85	1.86		6.71	8
0310	Frieze, 1" x 4"		250	.032		1.31	1.41		2.72	3
0320	1" x 6"		250	.032		2.06	1.41		3.47	4
0330	1" x 8"		225	.036		2.72	1.57		4.29	5

65 Plastic Simulated Wood Trim

65 10 - PVC Trim

5 10.10 PVC Trim, Exterior	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
1" x 10"	1 Corp	225	.036	L.F.	3.45	1.57		5.02	6.20
1" x 12"		200	.040		4.21	1.76		5.97	7.35
5/4" x 4"		240	.033		1.68	1.47		3.15	4.11
5/4" x 6"		240	.033		2.65	1.47		4.12	5.20
5/4" x 8"		215	.037		3.47	1.64		5.11	6.35
5/4" x 10"		215	.037		4.43	1.64		6.07	7.40
5/4" x 12"		190	.042		4.85	1.86		6.71	8.20
Rake, 1" x 4"		200	.040		1.31	1.76		3.07	4.15
1" x 6"		200	.040		2.06	1.76		3.82	4.98
1" x 8"		190	.042		2.72	1.86		4.58	5.85
1" x 10"		190	.042		3.45	1.86		5.31	6.65
1" x 12"		180	.044		4.21	1.96		6.17	7.65
5/4" x 4"		195	.041		1.68	1.81		3.49	4.63
5/4" x 6"		195	.041		2.65	1.81		4.46	5.70
5/4" x 8"		185	.043		3.47	1.91		5.38	6.75
5/4" x 10"		185	.043		4.43	1.91		6.34	7.80
5/4" x 12"		175	.046		4.85	2.02		6.87	8.45
Rake trim, 1" x 4"		225	.036		1.31	1.57		2.88	3.85
1" x 6"		225	.036		2.06	1.57		3.63	4.68
5/4" x 4"		220	.036		1.68	1.60		3.28	4.32
5/4" x 6"		220	.036		2.65	1.60		4.25	5.40
Soffit, 1" x 4"		420	.038		1.31	1.68		2.99	4.03
1" x 6"		420	.038		2.06	1.68		3.74	4.86
1" x 8"		420	.038		2.72	1.68		4.40	5.60
1" x 10"		400	.040		3.45	1.76		5.21	6.50
1" x 12"		400	.040		4.21	1.76		5.97	7.35
5/4" x 4"		410	.039		1.68	1.72		3.40	4.50
5/4" x 6"		410	.039		2.65	1.72		4.37	5.55
5/4" x 8"		410	.039		3.47	1.72		5.19	6.45
5/4" x 10"		390	.041		4.43	1.81		6.24	7.65
5/4" x 12"		390	.041		4.85	1.81		6.66	8.15

Division Notes

[illegible]

Estimating Tips

07 10 00 Dampproofing and Waterproofing

• The sure of the job specifications before pricing this subdivision. The difference in cost between waterproofing and dampproofing can be great. Waterproofing will hold back standing water. Dampproofing prevents the transmission of water vapor. Also included in this section are vapor retarding membranes.

07 20 00 Thermal Protection

Insulation and fireproofing products are measured by area, thickness, volume or R-value. Specifications may give only what the specific R-value should be in a certain situation. The estimator may need to choose the type of insulation to meet that R-value.

07 30 00 Steep Slope Roofing

07 40 00 Roofing and Siding Panels

Many roofing and siding products are bought and sold by the square. One square is equal to an area that measures 100 square feet.

This simple change in unit of measure could create a large error if the estimator is not observant. Accessories necessary for a complete installation must be figured into any calculations for both material and labor.

07 50 00 Membrane Roofing

07 60 00 Flashing and Sheet Metal

07 70 00 Roofing and Wall Specialties and Accessories

- The items in these subdivisions compose a roofing system. No one component completes the installation, and all must be estimated. Built-up or single-ply membrane roofing systems are made up of many products and installation trades. Wood blocking at roof perimeters or penetrations, parapet coverings, reglets, roof drains, gutters, downspouts, sheet metal flashing, skylights, smoke vents, and roof hatches all need to be considered along with the roofing material. Several different installation trades will need to work together on the roofing system. Inherent difficulties in the scheduling and coordination of various trades must be accounted for when estimating labor costs.

07 90 00 Joint Protection

- To complete the weather-tight shell, the sealants and caulking must be estimated. Where different materials meet—at expansion joints, at flashing penetrations, and at hundreds of other locations throughout a construction project—they provide another line of defense against water penetration. Often, an entire system is based on the proper location and placement of caulking or sealants. The detailed drawings that are included as part of a set of architectural plans show typical locations for these materials. When caulking or sealants are shown at typical locations, this means the estimator must include them for all the locations where this detail is applicable. Be careful to keep different types of sealants separate, and remember to consider backer rods and primers if necessary.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

07 01 Operation and Maint. of Thermal and Moisture Protection

07 01 50 – Maintenance of Membrane Roofing

07 01 50.10 Roof Coatings					Daily Crew Output	Labor- Hours	Unit	Material	2012 Base Costs		Total	Per Inch
ROOF COATINGS									Labor	Equipment		
0010	ROOF COATINGS											
0012	Asphalt, brush grade, material only						Gal.	7.60			7.60	
0200	Asphalt base, fibered aluminum coating							10.35			10.35	
0300	Asphalt primer, 5 gallon							6.60			6.60	
0600	Coal tar pitch, 200 lb. barrels						Ton	1,200			1,200	1.3
0700	Tar roof cement, 5 gal. lots						Gal.	15			15	
0800	Glass fibered roof & patching cement, 5 gallon						"	10.35			10.35	
0900	Reinforcing glass membrane, 450 S.F./roll						Ea.	55.50			55.50	
1000	Neoprene roof coating, 5 gal., 2 gal./sq.						Gal.	30			30	
1100	Roof patch & flashing cement, 5 gallon							7.90			7.90	
1200	Roof resaturant, glass fibered, 3 gal./sq.							7.40			7.40	

07 01 90 – Maintenance of Joint Protection

07 01 90.81 Joint Sealant Replacement

JOINT SEALANT REPLACEMENT												
0010	JOINT SEALANT REPLACEMENT											
0050	Central joints in concrete floors/slabs											
0100	Option 1 for joints with hard dry sealant											
0110	Step 1: Sawcut to remove 95% of old sealant											
0112	1/4" wide x 1/2" deep, with single saw blade	C-27	4800	.003	L.F.	.02	.14	.03	.19			
0114	3/8" wide x 3/4" deep, with single saw blade		4000	.004		.03	.17	.04	.24			
0116	1/2" wide x 1" deep, with double saw blades		3600	.004		.06	.19	.04	.29			
0118	3/4" wide x 1-1/2" deep, with double saw blades		3200	.005		.11	.21	.05	.37			
0120	Step 2: Water blast joint faces and edges				C-29	2500	.003	.11	.03	.14		
0130	Step 3: Air blast joint faces and edges				C-28	2000	.004	.17	.01	.18		
0140	Step 4: Sand blast joint faces and edges				E-11	2000	.016	.63	.11	.74		
0150	Step 5: Air blast joint faces and edges				C-28	2000	.004	.17	.01	.18		
0200	Option 2 for joints with soft pliable sealant											
0210	Step 1: Plow joint with rectangular blade				B-62	2600	.009	L.F.	.35	.06	.41	
0220	Step 2: Sawcut to re-face joint faces											
0222	1/4" wide x 1/2" deep, with single saw blade	C-27	2400	.007	L.F.	.02	.28	.06	.36			
0224	3/8" wide x 3/4" deep, with single saw blade		2000	.008		.04	.34	.07	.45			
0226	1/2" wide x 1" deep, with double saw blades		1800	.009		.07	.38	.08	.53			
0228	3/4" wide x 1-1/2" deep, with double saw blades		1600	.010		.15	.42	.09	.66			
0230	Step 3: Water blast joint faces and edges				C-29	2500	.003	.11	.03	.14		
0240	Step 4: Air blast joint faces and edges				C-28	2000	.004	.17	.01	.18		
0250	Step 5: Sand blast joint faces and edges				E-11	2000	.016	.63	.11	.74		
0260	Step 6: Air blast joint faces and edges				C-28	2000	.004	.17	.01	.18		
0290	For saw cutting new central joints, see Section 03 35 29.35											
8910	For backer rod, see Section 07 91 23.10											
8920	For joint sealant, see Sections 03 15 05.25 or 07 92 13.20											

07 05 Common Work Results for Thermal and Moisture Protection

07 05 05 – Selective Demolition

07 05 05.10 Selective Demo., Thermal and Moist. Protection

SELECTIVE DEMO., THERMAL AND MOISTURE PROTECTION												
0010	SELECTIVE DEMO., THERMAL AND MOISTURE PROTECTION											
0020	Caulking/sealant, to 1" x 1" joint	R024119-10	1 Clab	600	.013	L.F.	.47		.47			
0120	Downspouts, including hangers			350	.023	"	.80		.80			
0220	Flashing, sheet metal			290	.028	S.F.	.97		.97			
0420	Gutters, aluminum or wood, edge hung			240	.033	L.F.	1.17		1.17			
0520	Built-in			100	.080	"	2.81		2.81			
0620	Insulation, air/vapor barrier			3500	.002	S.F.	.08		.08			

7 05 Common Work Results for Thermal and Moisture Protection

05 05 – Selective Demolition

05 05.10 Selective Demo., Thermal and Moist. Protection				2012 Bare Costs		Total	Total Incl O&P
Crew	Doily Output	Labor-Hours	Unit	Material	Labor	Equipment	
Batts or blankets	1 Clob	1400	.006	C.F.	.20		.31
Foamed or sprayed in place	2 Clob	1000	.016	B.F.	.56		.86
Loose fitting	1 Clob	3000	.003	C.F.	.09		.14
Rigid board		3450	.002	B.F.	.08		.13
Roll roofing, cold adhesive		12	.667	Sq.	23.50		36
Roof accessories, adjustable metal chimney flashing		9	.889	Eq.	31		48
Plumbing vent flashing		32	.250	"	8.80		13.50
Ridge vent strip, aluminum		310	.026	L.F.	.91		1.39
Skylight to 10 S.F.		8	1	Eq.	35		54
Roof edge, aluminum soffit and fascia	▼	570	.014	L.F.	.49		.76
Concrete coping, up to 12" wide	2 Clob	160	.100		3.51		5.40
Drip edge	1 Clob	1650	.005		.17		.26
Grovel stop		1650	.005		.17		.26
Sheet metal coping, up to 12" wide	▼	240	.033	▼	1.17		1.80
Roof insulation board, over 2" thick	B-2	7800	.005	B.F.	.18		.28
Up to 2" thick	"	3900	.010	S.F.	.36		.56
Roof ventilation, louvered gable vent	1 Clob	16	.500	Eq.	17.55		27
Remove, roof hatch	G-3	15	2.133		93		142
Rafter vents	1 Clob	960	.008	▼	.29		.45
Soffit vent and/or fascia vent		575	.014	L.F.	.49		.75
Soffit vent strip, aluminum, 3" to 4" wide		160	.050		1.76		2.70
Roofing accessories, shingle moulding, to 1" x 4"	▼	1600	.005		.18		.27
Cont strip	B-2	2000	.020		.71		1.09
Concrete block walkway	1 Clob	230	.035	▼	1.22		1.88
Roofing, felt paper, 15#		70	.114	Sq.	4.01		6.15
#30 felt	▼	30	.267	"	9.35		14.40
Asphalt shingles, 1 layer	B-2	3500	.011	S.F.	.41		.62
2 layers		1750	.023	"	.81		1.25
Modified bitumen		26	1.538	Sq.	54.50		84
Built-up, no gravel, 3 ply		25	1.600		57		87.50
4 ply		21	1.905	▼	67.50		104
5 ply		1600	.025	S.F.	.89		1.37
5 ply, with gravel		890	.045		1.60		2.45
Grovel removal, minimum		5000	.008		.28		.44
Maximum		2000	.020		.71		1.09
Fiberglass sheet		1200	.033		1.18		1.82
Slate shingles		1900	.021	▼	.75		1.15
Ridge shingles, clay or slate		2000	.020	L.F.	.71		1.09
Single ply membrane, attached at seams		52	.769	Sq.	27.50		42
Bollosed		75	.533		18.95		29
Fully adhered	▼	39	1.026	▼	36.50		56
Roof hatch, 2'-6" x 3'-0"	1 Clob	10	.800	Eq.	28		43
Wood shingles	B-2	2200	.018	S.F.	.65		.99
Sheet metal roofing	"	2150	.019		.66		1.02
Siding, horizontal wood clapboards	1 Clob	380	.021		.74		1.14
Exterior insulation finish system	"	120	.067		2.34		3.60
Tempered hardboard, remove and reset	1 Corp	380	.021		.93		1.43
Tempered hardboard sheet siding	"	375	.021	▼	.94		1.45
Metal, corner strips	1 Clob	850	.009	L.F.	.33		.51
Horizontal strips		444	.018	S.F.	.63		.97
Vertical strips		400	.020		.70		1.08
Wood shingles		350	.023		.80		1.23
Stucco siding	▼	360	.022	▼	.78		1.20

07 05 Common Work Results for Thermal and Moisture Protection

07 05 05 – Selective Demolition

07 05 05.10 Selective Demo., Thermal and Moist. Protection		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	T. Inc.
							Labor	Equipment		
5670	Textured plywood	1 Clob	725	.011	S.F.		.39		.39	
5720	Vinyl siding		510	.016	↓		.55		.55	
5770	Corner strips		900	.009	L.F.		.31		.31	
5870	Wood, boards, vertical		400	.020	S.F.		.70		.70	
5920	Waterproofing, protection/drain board	2 Clob	3900	.004	B.F.		.14		.14	
5970	Over 1/2" thick		1750	.009	S.F.		.32		.32	
6020	To 1/2" thick		2000	.008	"		.28		.28	

07 11 Dampproofing

07 11 13 – Bituminous Dampproofing

07 11 13.10 Bituminous Asphalt Coating

0010	BITUMINOUS ASPHALT COATING									
0030	Brushed on, below grade, 1 coat	1 Rofc	665	.012	S.F.	.19	.45			.64
0100	2 coat		500	.016		.38	.60			.98
0300	Sprayed on, below grade, 1 coat		830	.010		.19	.36			.55
0400	2 coat	↓	500	.016	↓	.37	.60			.97
0500	Asphalt coating, with fibers				Gol.	10.35				10.35
0600	Troweled on, asphalt with fibers, 1/16" thick	1 Rofc	500	.016	S.F.	.45	.60			1.05
0700	1/8" thick		400	.020		.80	.75			1.55
1000	1/2" thick	↓	350	.023	↓	2.59	.86			3.45

07 11 16 – Cementitious Dampproofing

07 11 16.20 Cementitious Parging

0010	CEMENTITIOUS PARGING									
0020	Portland cement, 2 coats, 1/2" thick	D-1	250	.064	S.F.	.31	2.55			2.86
0100	Waterproofed Portland cement, 1/2" thick, 2 coats	"	250	.064	"	3.30	2.55			5.85

07 12 Built-up Bituminous Waterproofing

07 12 13 – Built-Up Asphalt Waterproofing

07 12 13.20 Membrane Waterproofing

0010	MEMBRANE WATERPROOFING									
0012	On slabs, 1 ply, felt, mopped	G-1	3000	.019	S.F.	.36	.65	.15		1.16
0100	On slabs, 1 ply, glass fiber fabric, mopped		2100	.027		.37	.93	.22		1.52
0300	On slabs, 2 ply, felt, mopped		2500	.022		.72	.78	.18		1.68
0400	On slabs, 2 ply, glass fiber fabric, mopped		1650	.034		.83	1.19	.27		2.29
0600	On slabs, 3 ply, felt, mopped		2100	.027		1.09	.93	.22		2.24
0700	On slabs, 3 ply, glass fiber fabric, mopped	↓	1550	.036		1.12	1.26	.29		2.67
0710	Asphaltic hardboard protection board, 1/8" thick	2 Rofc	500	.032		.44	1.20			1.64
1000	1/4" EPS membrane protection board		3500	.005		.34	.17			.51
1050	3/8" thick		3500	.005		.38	.17			.55
1060	1/2" thick		3500	.005	↓	.41	.17			.58
1070	Fiberglass fabric, black, 20/10 mesh	↓	116	.138	Sq.	18.95	5.15			24.10

7 13 Sheet Waterproofing

13 53 – Elastomeric Sheet Waterproofing

13 53.10 Elastomeric Sheet Waterproofing and Access.		Daily	Labor-			2012 Bare Costs			Total
ELASTOMERIC SHEET WATERPROOFING AND ACCESS.		Crew	Output	Hours	Unit	Material	Labor	Equipment	Incl O&P
EPDM, plain, 45 mils thick	2 Rofc	580	.028	S.F.	1.36	1.03			3.22
60 mils thick		570	.028		1.45	1.05			3.35
Nylon reinforced sheets, 45 mils thick		580	.028		1.37	1.03			3.23
60 mils thick	▼	570	.028	▼	1.47	1.05			3.37
Vulcanizing splicing tape for above, 2" wide				C.L.F.	50				55
4" wide				"	113				124
Adhesive, bonding, 60 S.F. per gal.				Gal.	22.50				24.50
Splicing, 75 S.F. per gal.				"	32				35
Neoprene sheets, plain, 45 mils thick	2 Rofc	580	.028	S.F.	1.67	1.03			3.57
60 mils thick		570	.028		2.35	1.05			4.35
Nylon reinforced, 45 mils thick		580	.028		1.93	1.03			3.85
60 mils thick		570	.028		2.81	1.05			4.85
120 mils thick	▼	500	.032	▼	5.60	1.20			8.15
Adhesive, splicing, 150 S.F. per gal. per coat				Gal.	32				35
Fiberglass reinforced, fluid applied, 1/8" thick	2 Rofc	500	.032	S.F.	1.59	1.20			3.76
Polyethylene and rubberized asphalt sheets, 60 mils thick		550	.029		.63	1.09			2.51
Polyvinyl chloride sheets, plain, 10 mils thick		580	.028		.17	1.03			1.92
20 mils thick		570	.028		.26	1.05			2.05
30 mils thick	▼	560	.029	▼	.36	1.07			2.19
Adhesives, trowel grade, 40-100 S.F. per gal.				Gal.	23				25.50
Brush grade, 100-250 S.F. per gal.				"	18.50				20.50
Bitumen modified polyurethane, fluid applied, 55 mils thick	2 Rofc	665	.024	S.F.	.82	.90			2.41

7 16 Cementitious and Reactive Waterproofing

16 16 – Crystalline Waterproofing

16 16.20 Cementitious Waterproofing

CEMENTITIOUS WATERPROOFING									
1/8" application, sprayed on	G-2A	1000	.024	S.F.	2	.80	.63	3.43	4.20
4 coat cementitious metallic slurry	1 Cefi	1.20	6.667	C.S.F.	26.50	282		308.50	445

7 17 Bentonite Waterproofing

17 17 13 – Bentonite Panel Waterproofing

17 13.10 Bentonite

BENTONITE									
Panels, 4' x 4', 3/16" thick	1 Rofc	625	.013	S.F.	1.22	.48		1.70	2.14
Rolls, 3/8" thick, with geotextile fabric both sides	"	550	.015	"	1.35	.54		1.89	2.40
Granular bentonite, 50 lb. bags (.625 C.F.)				Bog	9.90			9.90	10.90
3/8" thick, troweled on	1 Rofc	475	.017	S.F.	.50	.63		1.13	1.60
Drain board, expanded polystyrene, 1-1/2" thick	1 Rohe	1600	.005		.42	.14		.56	.69
2" thick		1600	.005		.56	.14		.70	.85
3" thick		1600	.005		.84	.14		.98	1.15
4" thick		1600	.005		1.12	.14		1.26	1.46
With filter fabric, 1-1/2" thick		1600	.005		.50	.14		.64	.78
2" thick		1600	.005		.64	.14		.78	.94
3" thick		1600	.005		.92	.14		1.06	1.25
4" thick	▼	1600	.005	▼	1.20	.14		1.34	1.55

07 19 Water Repellents

07 19 19 - Silicone Water Repellents

07 19 19.10 Silicone Based Water Repellents

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
0010	SILICONE BASED WATER REPELLENTS									
0020	Water base liquid, roller applied	2 Rafc	7000	.002	S.F.	.89	.09		.98	1.00
0200	Silicone or stearate, sprayed on CMU, 1 coat	1 Rafc	4000	.002		.33	.07		.40	.42
0300	2 coats	"	3000	.003	▼	.66	.10		.76	.78

07 21 Thermal Insulation

07 21 13 - Board Insulation

07 21 13.10 Rigid Insulation

0010	RIGID INSULATION, for walls									
0040	Fiberglass, 1.5#/C.F., unfaced, 1" thick, R4.1	G	1 Corp	1000	.008	S.F.	.25	.35	.60	.62
0060	1-1/2" thick, R6.2	G		1000	.008		.37	.35	.72	.74
0080	2" thick, R8.3	G		1000	.008		.41	.35	.76	.78
0120	3" thick, R12.4	G		800	.010		.51	.44	.95	1.00
0370	3#/C.F., unfaced, 1" thick, R4.3	G		1000	.008		.48	.35	.83	1.00
0390	1-1/2" thick, R6.5	G		1000	.008		.72	.35	1.07	1.32
0400	2" thick, R8.7	G		890	.009		.96	.40	1.36	1.61
0420	2-1/2" thick, R10.9	G		800	.010		1.01	.44	1.45	1.70
0440	3" thick, R13	G		800	.010		1.46	.44	1.90	2.22
0520	Foil faced, 1" thick, R4.3	G		1000	.008		.83	.35	1.18	1.33
0540	1-1/2" thick, R6.5	G		1000	.008		1.24	.35	1.59	1.84
0560	2" thick, R8.7	G		890	.009		1.55	.40	1.95	2.20
0580	2-1/2" thick, R10.9	G		800	.010		1.82	.44	2.26	2.51
0600	3" thick, R13	G	▼	800	.010	▼	2	.44	2.44	2.70
1600	Isocyanurate, 4' x 8' sheet, foil faced, both sides									
1610	1/2" thick	G	1 Corp	800	.010	S.F.	.29	.44	.73	.75
1620	5/8" thick	G		800	.010		.32	.44	.76	.78
1630	3/4" thick	G		800	.010		.33	.44	.77	.79
1640	1" thick	G		800	.010		.51	.44	.95	.97
1650	1-1/2" thick	G		730	.011		.64	.48	1.12	1.14
1660	2" thick	G		730	.011		.78	.48	1.26	1.28
1670	3" thick	G		730	.011		1.78	.48	2.26	2.28
1680	4" thick	G		730	.011		2	.48	2.48	2.50
1700	Perlite, 1" thick, R2.77	G		800	.010		.30	.44	.74	.76
1750	2" thick, R5.55	G		730	.011		.60	.48	1.08	1.10
1900	Extruded polystyrene, 25 PSI compressive strength, 1" thick, R5	G		800	.010		.50	.44	.94	.96
1940	2" thick R10	G		730	.011		1	.48	1.48	1.50
1960	3" thick, R15	G		730	.011		1.44	.48	1.92	1.94
2100	Expanded polystyrene, 1" thick, R3.85	G		800	.010		.28	.44	.72	.74
2120	2" thick, R7.69	G		730	.011		.56	.48	1.04	1.06
2140	3" thick, R11.49	G	▼	730	.011	▼	.84	.48	1.32	1.34

07 21 13.13 Foam Board Insulation

0010	FOAM BOARD INSULATION									
0600	Polystyrene, expanded, 1" thick, R4	G	1 Corp	680	.012	S.F.	.28	.52	.80	.82
0700	2" thick, R8	G	"	675	.012	"	.56	.52	1.08	1.10

07 21 16 - Blanket Insulation

07 21 16.10 Blanket Insulation for Floors/Ceilings

0010	BLANKET INSULATION FOR FLOORS/CEILINGS									
0020	Including spring type wire fasteners									
2000	Fiberglass, blankets or batts, paper or foil backing									
2100	3-1/2" thick, R13	G	1 Corp	700	.011	S.F.	.38	.50	.88	.90

21 Thermal Insulation

21 16 - Blanket Insulation

				Daily Labor-		Unit	Material	2012 Bare Costs		Total	Total Incl O&P
				Crew	Output			Labor	Equipment		
16.10 Blanket Insulation for Floors/Ceilings											
6-1/4" thick, R19	G	1 Corp	600	.013	S.F.	.43	.59			1.02	1.37
9-1/2" thick, R30	G		500	.016		.66	.71			1.37	1.82
12" thick, R38	G		475	.017		.72	.74			1.46	1.93
Unfaced, 3-1/2" thick, R13	G		600	.013		.31	.59			.90	1.24
6-1/4" thick, R19	G		500	.016		.35	.71			1.06	1.48
9-1/2" thick, R30	G		450	.018		.62	.78			1.40	1.89
12" thick, R38	G		425	.019		.71	.83			1.54	2.06
16.20 Blanket Insulation for Walls											
BLANKET INSULATION FOR WALLS											
Kraft faced fiberglass, 3-1/2" thick, R11, 15" wide	G	1 Corp	1350	.006	S.F.	.26	.26			.52	.69
23" wide	G		1600	.005		.26	.22			.48	.63
R13, 11" wide	G		1150	.007		.33	.31			.64	.83
15" wide	G		1350	.006		.33	.26			.59	.76
23" wide	G		1600	.005		.33	.22			.55	.70
R15, 11" wide	G		1150	.007		.43	.31			.74	.94
15" wide	G		1350	.006		.43	.26			.69	.87
23" wide	G		1600	.005		.43	.22			.65	.81
6" thick, R19, 11" wide	G		1150	.007		.38	.31			.69	.89
15" wide	G		1350	.006		.38	.26			.64	.82
23" wide	G		1600	.005		.38	.22			.60	.76
R21, 11" wide	G		1150	.007		.52	.31			.83	1.04
15" wide	G		1350	.006		.52	.26			.78	.97
23" wide	G		1600	.005		.52	.22			.74	.91
9" thick, R30, 11" wide	G		985	.008		.62	.36			.98	1.23
15" wide	G		1150	.007		.62	.31			.93	1.15
23" wide	G		1350	.006		.62	.26			.88	1.08
12" thick, R38, 11" wide	G		985	.008		.72	.36			1.08	1.34
15" wide	G		1150	.007		.72	.31			1.03	1.26
23" wide	G		1350	.006		.72	.26			.98	1.19
Foil faced fiberglass, 3-1/2" thick, R13, 11" wide	G		1150	.007		.34	.31			.65	.84
15" wide	G		1350	.006		.34	.26			.60	.77
23" wide	G		1600	.005		.34	.22			.56	.71
R15, 11" wide	G		1150	.007		.44	.31			.75	.95
15" wide	G		1350	.006		.44	.26			.70	.88
23" wide	G		1600	.005		.44	.22			.66	.82
6" thick, R19, 11" wide	G		1150	.007		.40	.31			.71	.91
15" wide	G		1350	.006		.40	.26			.66	.84
23" wide	G		1600	.005		.40	.22			.62	.78
R21, 11" wide	G		1150	.007		.55	.31			.86	1.08
15" wide	G		1350	.006		.55	.26			.81	1.01
23" wide	G		1600	.005		.55	.22			.77	.95
9" thick, R30, 11" wide	G		985	.008		.65	.36			1.01	1.27
15" wide	G		1150	.007		.65	.31			.96	1.19
23" wide	G		1350	.006		.65	.26			.91	1.12
12" thick, R38, 11" wide	G		985	.008		.75	.36			1.11	1.38
15" wide	G		1150	.007		.75	.31			1.06	1.30
23" wide	G		1350	.006		.75	.26			1.01	1.23
Unfaced fiberglass, 3-1/2" thick, R13, 11" wide	G		1150	.007		.31	.31			.62	.81
15" wide	G		1350	.006		.31	.26			.57	.74
23" wide	G		1600	.005		.31	.22			.53	.68
R15, 11" wide	G		1150	.007		.41	.31			.72	.92
15" wide	G		1350	.006		.41	.26			.67	.85

07 21 Thermal Insulation

07 21 16 – Blanket Insulation

07 21 16.20 Blanket Insulation for Walls

			Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O.C.
0836	23" wide	G	1 Carp	1600	.005	S.F.	.41	.22		.63	
0838	6" thick, R19, 11" wide	G		1150	.007		.35	.31		.66	
0860	15" wide	G		1150	.007		.35	.31		.66	
0880	23" wide	G		1350	.006		.35	.26		.61	
0882	R21, 11" wide	G		1150	.007		.50	.31		.81	
0886	15" wide	G		1350	.006		.50	.26		.76	
0888	23" wide	G		1600	.005		.50	.22		.72	
0890	9" thick, R30, 11" wide	G		985	.008		.60	.36		.96	
0900	15" wide	G		1150	.007		.60	.31		.91	
0920	23" wide	G		1350	.006		.60	.26		.86	
0930	12" thick, R38, 11" wide	G		985	.008		.71	.36		1.07	
0940	15" wide	G		1000	.008		.71	.35		1.06	
0960	23" wide	G		1150	.007		.71	.31		1.02	
1300	Mineral fiber batts, kraft faced										
1320	3-1/2" thick, R12	G	1 Carp	1600	.005	S.F.	.38	.22		.60	
1340	6" thick, R19	G		1600	.005		.38	.22		.60	
1380	10" thick, R30	G		1350	.006		.62	.26		.88	
1850	Friction fit wire insulation supports, 16" O.C.			960	.008	Ea.	.05	.37		.42	

07 21 23 – Loose-Fill Insulation

07 21 23.10 Poured Loose-Fill Insulation

0010	POURED LOOSE-FILL INSULATION										
0020	Cellulose fiber, R3.8 per inch	G	1 Carp	200	.040	C.F.	.53	1.76		2.29	
0040	Ceramic type (perlite), R3.2 per inch	G		200	.040		5	1.76		6.76	
0080	Fiberglass wool, R4 per inch	G		200	.040		.10	1.76		1.86	
0100	Mineral wool, R3 per inch	G		200	.040		.39	1.76		2.15	
0300	Polystyrene, R4 per inch	G		200	.040		3.09	1.76		4.85	
0400	Perlite, R2.7 per inch	G		200	.040		5	1.76		6.76	
0700	Wood fiber, R3.85 per inch	G		200	.040		.70	1.76		2.46	

07 21 23.20 Masonry Loose-Fill Insulation

0010	MASONRY LOOSE-FILL INSULATION, vermiculite or perlite										
0100	In cores of concrete block, 4" thick wall, .115 C.F./S.F.	G	D-1	4800	.003	S.F.	.58	.13		.71	
0200	6" thick wall, .175 C.F./S.F.	G		3000	.005		.88	.21		1.09	
0300	8" thick wall, .258 C.F./S.F.	G		2400	.007		1.29	.27		1.56	
0400	10" thick wall, .340 C.F./S.F.	G		1850	.009		1.70	.34		2.04	
0500	12" thick wall, .422 C.F./S.F.	G		1200	.013		2.11	.53		2.64	
0550	For sand fill, deduct from above	G					70%				
0600	Poured cavity wall, vermiculite or perlite, water repellant	G	D-1	250	.064	C.F.	5	2.55		7.55	
0700	Foamed in place, urethane in 2-5/8" cavity	G	G-2A	1035	.023	S.F.	1.29	.78	.61	2.68	
0800	For each 1" added thickness, add	G	"	2372	.010	"	.42	.34	.27	1.03	

07 21 26 – Blown Insulation

07 21 26.10 Blown Insulation

0010	BLOWN INSULATION Ceilings, with open access										
0020	Cellulose, 3-1/2" thick, R13	G	G-4	5000	.005	S.F.	.18	.17	.07	.42	
0030	5-3/16" thick, R19	G		3800	.006		.27	.23	.09	.59	
0050	6-1/2" thick, R22	G		3000	.008		.35	.29	.12	.76	
0100	8-11/16" thick, R30	G		2600	.009		.47	.33	.13	.93	
0120	10-7/8" thick, R38	G		1800	.013		.60	.48	.19	1.27	
1000	Fiberglass, 5.5" thick, R11	G		3800	.006		.04	.23	.09	.36	
1050	6" thick, R12	G		3000	.008		.05	.29	.12	.46	
1100	8.8" thick, R19	G		2200	.011		.06	.39	.16	.61	
1200	10" thick, R22	G		1800	.013		.07	.48	.19	.74	

21 Thermal Insulation

21 26 - Blown Insulation

26.10 Blown Insulation					Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
										Labor	Equipment	Total	
17													
30		11.5" thick, R26	G	G-4	1500	.016	S.F.		.09	.57	.23	.89	1.24
35		13" thick, R30	G		1400	.017			.10	.61	.25	.96	1.32
45		16" thick, R38	G		1145	.021			.13	.75	.30	1.18	1.62
50		20" thick, R49	G		920	.026			.17	.93	.38	1.48	2.05

21 27 - Reflective Insulation

21 27.10 Reflective Insulation Options

REFLECTIVE INSULATION OPTIONS										
Aluminum foil on reinforced scrim	G	1 Corp	19	.421	C.S.F.	14.20	18.55		32.75	44
Reinforced with woven polyolefin	G		19	.421		18	18.55		36.55	48.50
With single bubble air space, R8.8	G		15	.533		28	23.50		51.50	67
With double bubble air space, R9.8	G		15	.533		29	23.50		52.50	67.50

21 29 - Sprayed Insulation

21 29.10 Sprayed-On Insulation

SPRAYED-ON INSULATION										
Fibrous/cementitious, finished wall, 1" thick, R3.7	G	G-2	2050	.012	S.F.	.25	.43	.06	.74	1.01
Attic, 5.2" thick, R19	G		1550	.015	"	.44	.57	.08	1.09	1.44
Fiberglass, R4 per inch, vertical	G		2050	.012	B.F.	.15	.43	.06	.64	.90
Horizontal	G	▼	1550	.015	"	.15	.57	.08	.80	1.13
Closed cell, spray polyurethane foam, 2 pounds per cubic foot density										
1" thick	G	G-2A	6000	.004	S.F.	.42	.13	.11	.66	.80
2" thick	G		3000	.008		.83	.27	.21	1.31	1.59
3" thick	G		2000	.012		1.25	.40	.32	1.97	2.38
3-1/2" thick	G		1715	.014		1.46	.47	.37	2.30	2.76
4" thick	G		1500	.016		1.67	.54	.42	2.63	3.16
5" thick	G		1200	.020		2.08	.67	.53	3.28	3.96
5-1/2" thick	G		1090	.022		2.29	.74	.58	3.61	4.36
6" thick	G	▼	1000	.024	▼	2.50	.80	.63	3.93	4.75

22 Roof and Deck Insulation

22 16 - Roof Board Insulation

22 16.10 Roof Deck Insulation

ROOF DECK INSULATION										
20	Fiberboard low density, 1/2" thick R1.39	G	1 Rofc	1000	.008	S.F.	.26	.30	.56	.79
30	1" thick R2.78	G		800	.010		.46	.37	.83	1.14
30	1 1/2" thick R4.17	G		800	.010		.70	.37	1.07	1.40
00	2" thick R5.56	G		800	.010		.93	.37	1.30	1.65
10	Fiberboard high density, 1/2" thick R1.3	G		1000	.008		.24	.30	.54	.76
20	1" thick R2.5	G		800	.010		.48	.37	.85	1.16
30	1-1/2" thick R3.8	G		800	.010		.72	.37	1.09	1.42
00	Fiberglass, 3/4" thick R2.78	G		1000	.008		.56	.30	.86	1.12
	15/16" thick R3.70	G		1000	.008		.74	.30	1.04	1.31
60	1-1/16" thick R4.17	G		1000	.008		.93	.30	1.23	1.52
00	1-5/16" thick R5.26	G		1000	.008		1.26	.30	1.56	1.89
50	2-1/16" thick R8.33	G		800	.010		1.33	.37	1.70	2.09
00	2-7/16" thick R10	G		800	.010		1.54	.37	1.91	2.32
50	Perlite, 1/2" thick R1.32	G		1050	.008		.34	.29	.63	.85
55	3/4" thick R2.08	G		800	.010		.37	.37	.74	1.04
60	1" thick R2.78	G		800	.010		.46	.37	.83	1.14
70	1-1/2" thick R4.17	G		800	.010		.48	.37	.85	1.16
80	2" thick R5.56	G		700	.011		.80	.43	1.23	1.60

07 22 Roof and Deck Insulation

07 22 16 - Roof Board Insulation

07 22 16.10 Roof Deck Insulation					Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total	T
										Labor	Equipment			
1685	2-1/2" thick R6.67	G	1	Ro/c	700	.011	S.F.		.95	.43			1.38	
1690	Tapered for drainage	G			800	.010	B.F.		.73	.37			1.10	
1700	Polyisocyanurate, 2#/C.F. density, 3/4" thick	G			1500	.005	S.F.		.44	.20			.64	
1705	1" thick	G			1400	.006			.51	.21			.72	
1715	1-1/2" thick	G			1250	.006			.66	.24			.90	
1725	2" thick	G			1100	.007			.78	.27			1.05	
1735	2-1/2" thick	G			1050	.008			1.01	.29			1.30	
1745	3" thick	G			1000	.008			1.23	.30			1.53	
1755	3-1/2" thick	G			1000	.008			1.95	.30			2.25	
1765	Tapered for drainage	G			1400	.006	B.F.		.52	.21			.73	
1900	Extruded Polystyrene													
1910	15 PSI compressive strength, 1" thick, R5	G	1	Ro/c	1500	.005	S.F.		.44	.20			.64	
1920	2" thick, R10	G			1250	.006			.56	.24			.80	
1930	3" thick R15	G			1000	.008			1.15	.30			1.45	
1932	4" thick R20	G			1000	.008			1.52	.30			1.82	
1934	Tapered for drainage	G			1500	.005	B.F.		.51	.20			.71	
1940	25 PSI compressive strength, 1" thick R5	G			1500	.005	S.F.		.61	.20			.81	
1942	2" thick R10	G			1250	.006			1.15	.24			1.39	
1944	3" thick R15	G			1000	.008			1.75	.30			2.05	
1946	4" thick R20	G			1000	.008			2.50	.30			2.80	
1948	Tapered for drainage	G			1500	.005	B.F.		.53	.20			.73	
1950	40 psi compressive strength, 1" thick R5	G			1500	.005	S.F.		.47	.20			.67	
1952	2" thick R10	G			1250	.006			.88	.24			1.12	
1954	3" thick R15	G			1000	.008			1.28	.30			1.58	
1956	4" thick R20	G			1000	.008			1.70	.30			2	
1958	Tapered for drainage	G			1400	.006	B.F.		.67	.21			.88	
1960	60 PSI compressive strength, 1" thick R5	G			1450	.006	S.F.		.65	.21			.86	
1962	2" thick R10	G			1200	.007			1.25	.25			1.50	
1964	3" thick R15	G			975	.008			2	.31			2.31	
1966	4" thick R20	G			950	.008			2.50	.31			2.81	
1968	Tapered for drainage	G			1400	.006	B.F.		.85	.21			1.06	
2010	Expanded polystyrene, 1#/C.F. density, 3/4" thick R2.89	G			1500	.005	S.F.		.21	.20			.41	
2020	1" thick R3.85	G			1500	.005			.28	.20			.48	
2100	2" thick R7.69	G			1250	.006			.56	.24			.80	
2110	3" thick R11.49	G			1250	.006			.84	.24			1.08	
2120	4" thick R15.38	G			1200	.007			1.12	.25			1.37	
2130	5" thick R19.23	G			1150	.007			1.40	.26			1.66	
2140	6" thick R23.26	G			1150	.007			1.68	.26			1.94	
2150	Tapered for drainage	G			1500	.005	B.F.		.51	.20			.71	
2400	Composites with 2" EPS													
2410	1" fiberboard	G	1	Ro/c	950	.008	S.F.		1.32	.31			1.63	
2420	7/16" oriented strand board	G			800	.010			1.06	.37			1.43	
2430	1/2" plywood	G			800	.010			1.31	.37			1.68	
2440	1" perlite	G			800	.010			1.08	.37			1.45	
2450	Composites with 1-1/2" polyisocyanurate													
2460	1" fiberboard	G	1	Ro/c	800	.010	S.F.		1.12	.37			1.49	
2470	1" perlite	G			850	.009			1	.35			1.35	
2480	7/16" oriented strand board	G			800	.010			.88	.37			1.25	

24 Exterior Insulation and Finish Systems

24 13 - Polymer-Based Exterior Insulation and Finish System

4 13.10 Exterior Insulation and Finish Systems	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total	Total Incl O&P
EXTERIOR INSULATION AND FINISH SYSTEMS										
Field applied, 1" EPS insulation	G	J-1	390	.103	S.F.	1.97	3.95	.34	6.26	8.45
With 1/2" cement board sheathing	G		268	.149		2.65	5.75	.49	8.89	12.05
2" EPS insulation	G		390	.103		2.25	3.95	.34	6.54	8.75
With 1/2" cement board sheathing	G		268	.149		2.93	5.75	.49	9.17	12.35
3" EPS insulation	G		390	.103		2.53	3.95	.34	6.82	9.05
With 1/2" cement board sheathing	G		268	.149		3.21	5.75	.49	9.45	12.65
4" EPS insulation	G		390	.103		2.81	3.95	.34	7.10	9.35
With 1/2" cement board sheathing	G		268	.149		4.17	5.75	.49	10.41	13.75
Premium finish add			1265	.032		.31	1.22	.10	1.63	2.27
Heavy duty reinforcement add			914	.044		.90	1.69	.14	2.73	3.67
2.5#/S.Y. metal lath substrate add	1 Lath	75	.107	S.Y.	2.37	4.19			6.56	8.75
3.4#/S.Y. metal lath substrate add	"	75	.107	"	2.58	4.19			6.77	9
Color or texture change,	J-1	1265	.032	S.F.	.83	1.22	.10		2.15	2.84
With substrate leveling base coat	1 Plas	530	.015		.83	.61			1.44	1.82
With substrate sealing base coat	1 Port	1224	.007		.08	.25			.33	.46
V groove shape in panel face				L.F.	.60				.60	.66
U groove shape in panel face				"	.79				.79	.87
For higher than one story, add						25%				

25 Weather Barriers

25 10 - Weather Barriers or Wraps

25 10.10 Weather Barriers

WEATHER BARRIERS									
Asphalt felt paper, 15#	1 Carp	37	.216	Sq.	5.65	9.55		15.20	21
Per square foot	"	3700	.002	S.F.	.06	.10		.16	.21
Housewrap, exterior, spun bonded polypropylene									
Small roll	1 Carp	3800	.002	S.F.	.13	.09		.22	.29
Large roll	"	4000	.002	"	.13	.09		.22	.28
Asphalt felt roof deck vapor barrier, class 1 metal decks	1 Rofc	37	.216	Sq.	20.50	8.10		28.60	36.50
For all other decks	"	37	.216		15	8.10		23.10	30
Asphalt felt, 50% recycled content, 15 lb., 4 sq per roll	1 Carp	36	.222		5.65	9.80		15.45	21.50
30 lb., 2 sq per roll	"	36	.222		11.30	9.80		21.10	27.50
Building wrap, spunbonded polyethylene	2 Carp	8000	.002	S.F.	.17	.09		.26	.33

26 Vapor Retarders

26 10 - Above-Grade Vapor Retarders

26 10.10 Vapor Retarders

VAPOR RETARDERS									
Aluminum and kraft laminated, foil 1 side	G	1 Carp	37	.216	Sq.	11.25	9.55	20.80	27
Foil 2 sides	G		37	.216		12.50	9.55	22.05	28.50
Polyethylene vapor barrier, standard, .002" thick	G		37	.216		1.30	9.55	10.85	16.10
.004" thick	G		37	.216		3.23	9.55	12.78	18.20
.006" thick	G		37	.216		4.54	9.55	14.09	19.65
.010" thick	G		37	.216		7	9.55	16.55	22.50
Clear reinforced, fire retardant, .008" thick	G		37	.216		10.65	9.55	20.20	26.50
Cross laminated type, .003" thick	G		37	.216		7.45	9.55	17	23
.004" thick	G		37	.216		8.20	9.55	17.75	23.50
Reinf. waterproof, .002" polyethylene backing, 1 side			37	.216		5.95	9.55	15.50	21

07 26 Vapor Retarders

07 26 10 – Above-Grade Vapor Retarders

07 26 10.10 Vapor Retarders		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind
							Labor	Equipment		
1900	2 sides	1 Carp	37	216	Sq.	7.80	9.55		17.35	21
2400	Waterproofed kraft with sisal or fiberglass fibers, minimum		37	216		6.40	9.55		15.95	21
2500	Maximum		37	216		15.85	9.55		25.40	21

07 31 Shingles and Shakes

07 31 13 – Asphalt Shingles

07 31 13.10 Asphalt Roof Shingles

0010	ASPHALT ROOF SHINGLES									
0100	Standard strip shingles									
0150	Inorganic, class A, 210-235 lb./sq.	1 Rofc	5.50	1.455	Sq.	75.50	54.50		130	174
0155	Pneumatic nailed		7	1.143		75.50	42.50		118	151
0200	Organic, class C, 235-240 lb./sq.		5	1.600		82.50	60		142.50	191
0205	Pneumatic nailed		6.25	1.280		82.50	48		130.50	177
0250	Standard, laminated multi-layered shingles									
0300	Class A, 240-260 lb./sq.	1 Rofc	4.50	1.778	Sq.	92.50	66.50		159	211
0305	Pneumatic nailed		5.63	1.422		92.50	53		145.50	191
0350	Class C, 260-300 lb./square, 4 bundles/square		4	2		135	75		210	277
0355	Pneumatic nailed		5	1.600		135	60		195	244
0400	Premium, laminated multi-layered shingles									
0450	Class A, 260-300 lb., 4 bundles/sq	1 Rofc	3.50	2.286	Sq.	159	85.50		244.50	321
0455	Pneumatic nailed		4.37	1.831		159	68.50		227.50	299
0500	Class C, 300-385 lb./square, 5 bundles/square		3	2.667		165	99.50		264.50	350
0505	Pneumatic nailed		3.75	2.133		165	80		245	319
0800	#15 felt underlayment		64	.125		5.65	4.68		10.33	13
0825	#30 felt underlayment		58	.138		11.30	5.15		16.45	21
0850	Self adhering polyethylene and rubberized asphalt underlayment		22	.364		74	13.60		87.60	114
0900	Ridge shingles		330	.024	L.F.	1.90	.91		2.81	3
0905	Pneumatic nailed		412.50	.019	"	1.90	.73		2.63	3
1000	For steep roofs (7 to 12 pitch or greater), add						50%			

07 31 16 – Metal Shingles

07 31 16.10 Aluminum Shingles

0010	ALUMINUM SHINGLES									
0020	Mill finish, .019 thick	1 Carp	5	1.600	Sq.	191	70.50		261.50	339
0100	.020" thick	"	5	1.600		214	70.50		284.50	367
0300	For colors, add					20			20	26
0600	Ridge cap, .024" thick	1 Carp	170	.047	L.F.	2.18	2.08		4.26	5
0700	End wall flashing, .024" thick		170	.047		1.78	2.08		3.86	5
0900	Valley section, .024" thick		170	.047		2.90	2.08		4.98	6
1000	Starter strip, .024" thick		400	.020		1.41	.88		2.29	3
1200	Side wall flashing, .024" thick		170	.047		1.78	2.08		3.86	5
1500	Gable flashing, .024" thick		400	.020		1.41	.88		2.29	3

07 31 16.20 Steel Shingles

0010	STEEL SHINGLES									
0012	Galvanized, 26 gauge	1 Rofs	2.20	3.636	Sq.	299	137		436	5
0200	24 gauge	"	2.20	3.636		299	137		436	5
0300	For colored galvanized shingles, add					55			55	7
0500	For 1" factory applied polystyrene insulation, add					40			40	5

31 Shingles and Shakes

31.26 - Slate Shingles

26.10 Slate Roof Shingles	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
SLATE ROOF SHINGLES R073126-20									
Buckingham Virginia black, 3/16" - 1/4" thick	1 Rats	1.75	4.571	Sq.	475	172		647	815
1/4" thick		1.75	4.571		475	172		647	815
Pennsylvania black, Bangor, #1 clear		1.75	4.571		490	172		662	830
Vermont, unfading, green, mottled green		1.75	4.571		480	172		652	815
Semi-weathering green & gray		1.75	4.571		350	172		522	670
Purple		1.75	4.571		425	172		597	755
Black or gray		1.75	4.571		460	172		632	795
Red		1.75	4.571		1,175	172		1,347	1,575
Variegated purple		1.75	4.571		415	172		587	745

31.29 - Wood Shingles and Shakes

31.29.13 Wood Shingles

WOOD SHINGLES									
16" No. 1 red cedar shingles, 5" exposure, on roof	1 Carp	2.50	3.200	Sq.	208	141		349	445
Pneumatic nailed		3.25	2.462		208	109		317	395
7-1/2" exposure, on walls		2.05	3.902		139	172		311	420
Pneumatic nailed		2.67	2.996		139	132		271	355
18" No. 1 red cedar perfections, 5-1/2" exposure, on roof		2.75	2.909		228	128		356	450
Pneumatic nailed		3.57	2.241		228	99		327	405
7-1/2" exposure, on walls		2.25	3.556		168	157		325	425
Pneumatic nailed		2.92	2.740		168	121		289	370
Resquared, and rebuffed, 5-1/2" exposure, on roof		3	2.667		260	118		378	465
Pneumatic nailed		3.90	2.051		260	90.50		350.50	425
7-1/2" exposure, on walls		2.45	3.265		191	144		335	430
Pneumatic nailed		3.18	2.516		191	111		302	380
Add to above for fire retardant shingles					55			55	60.50
Prefarmed ridge shingles	1 Carp	400	.020	L.F.	3.60	.88		4.48	5.30
White cedar shingles, 16" long, extras, 5" exposure, on roof		2.40	3.333	Sq.	154	147		301	395
Pneumatic nailed		3.12	2.564		154	113		267	345
5" exposure on walls		2	4		154	176		330	440
Pneumatic nailed		2.60	3.077		154	136		290	380
7-1/2" exposure, on walls		2	4		110	176		286	390
Pneumatic nailed		2.60	3.077		110	136		246	330
"B" grade, 5" exposure on walls		2	4		136	176		312	420
Pneumatic nailed		2.60	3.077		136	136		272	360
For 15# organic felt underlayment on roof, 1 layer, add		64	.125		5.65	5.50		11.15	14.75
2 layers, add		32	.250		11.30	11.05		22.35	29.50
For steep roofs (7/12 pitch or greater), add to above						50%			
Panelized systems, No. 1 cedar shingles on 5/16" CDX plywood									
On walls, 8' strips, 7" or 14" exposure	2 Carp	700	.023	S.F.	5.55	1.01		6.56	7.65
On roofs, 8' strips, 7" or 14" exposure	1 Carp	3	2.667	Sq.	555	118		673	790
Pneumatic nailed	"	4	2	"	555	88		643	745

31.29.16 Wood Shakes

WOOD SHAKES									
Hand-split red cedar shakes, 1/2" thick x 24" long, 10" exp. on roof	1 Carp	2.50	3.200	Sq.	233	141		374	475
Pneumatic nailed		3.25	2.462		233	109		342	425
3/4" thick x 24" long, 10" exp. on roof		2.25	3.556		233	157		390	495
Pneumatic nailed		2.92	2.740		233	121		354	440
1/2" thick, 18" long, 8-1/2" exp. on roof		2	4		159	176		335	445
Pneumatic nailed		2.60	3.077		159	136		295	385
3/4" thick x 18" long, 8 1/2" exp. on roof		1.80	4.444		159	196		355	475

07 31 Shingles and Shakes

07 31 29 – Wood Shingles and Shakes

07 31 29.16 Wood Shakes		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Ind. Ct.
							Labor	Equipment		
1215	Pneumatic nailed	1 Corp	2.34	3.419	Sq.	159	151		310	405
1255	10" exp. on walls		2	4		154	176		330	441
1260	10" exposure on walls, pneumatic nailed		2.60	3.077		154	136		290	381
1700	Add to above for fire retardant shakes, 24" long					55			55	61
1800	18" long					55			55	61
1810	Ridge shakes	1 Corp	350	.023	L.F.	3.60	1.01		4.61	

07 32 Roof Tiles

07 32 13 – Clay Roof Tiles

07 32 13.10 Clay Tiles

0010	CLAY TILES, including accessories									
2500	Imparted, English shingle, 555 pcs/sq., 6-1/2" x 10-1/2"	3 Rots	5	4.800	Sq.	1,175	180		1,355	1,600
2510	Flat interlocking, 210 pcs/sq., 8" x 14-1/4"		5.50	4.364		585	164		749	927
2520	192 pcs/sq., 9" x 13"		5.50	4.364		610	164		774	944
2530	100 pcs/sq., 13" x 16"		6	4		460	150		610	75
2540	94 pcs/sq., 12-1/2" x 18-1/4"		6	4		485	150		635	78
2550	93 pcs/sq., 12" x 18-1/2"		6	4		485	150		635	78
2560	French, 124 pcs/sq., 10-1/4" x 17-1/2"		6	4		535	150		685	84
2570	120 pcs/sq., 9-3/4" x 17-1/2"		6	4		385	150		535	67
2580	115 pcs/sq., 10-1/4" x 17-1/4"		6	4		485	150		635	78
2590	91 pcs/sq., 12-1/2" x 18-3/4"		6	4		510	150		660	81
2600	French shingle, 495 pcs/sq., 6-3/4" x 12"		5	4.800		1,400	180		1,580	1,855
2610	Goellic, 190 pcs/sq., 8-3/4" x 12"		5.50	4.364		460	164		624	76
2620	120 pcs/sq., 10-3/4" x 17-1/2"		6	4		560	150		710	86
2630	84 pcs/sq., 13-1/4" x 19"		6	4		460	150		610	75
2640	Handcrafted shingle, 320 pcs/sq., 7-1/4" x 14-3/4"		5	4.800		810	180		990	1,200
2650	Mediterranean S-Roman, 115 pcs/sq., 10" x 17-3/4"		6	4		410	150		560	70
2660	112 pcs/sq., 10" x 17-1/2"		6	4		355	150		505	64
2670	100 pcs/sq., 10-1/2" x 18-1/2"		6	4		254	150		404	50
2680	Mission pan & cover, 260 pcs/sq., 6-1/4" x 17-3/4"		5.50	4.364		435	164		599	73
2690	183 pcs/sq., 8" x 18"		5.50	4.364		535	164		699	86
2700	Pantile, 180 pcs/sq., 9-3/4" x 14"		5.50	4.364		685	164		849	1,027
2710	150 pcs/sq., 10-1/4" x 14-1/2"		6	4		585	150		735	89
2720	115 pcs/sq., 11-1/4" x 18"		6	4		535	150		685	84
3010	#15 felt underlayment	1 Rofc	64	.125		5.65	4.68		10.33	
3020	#30 felt underlayment		58	.138		11.30	5.15		16.45	
3040	Polyethylene ond rubberized asph. underlayment		22	.364		74	13.60		87.60	106

07 32 16 – Concrete Roof Tiles

07 32 16.10 Concrete Tiles

0010	CONCRETE TILES									
0020	Corrugated, 13" x 16-1/2", 90 per sq., 950 lb. per sq.									
0050	Earthtone colors, nailed to wood deck	1 Rats	1.35	5.926	Sq.	97.50	223		320.50	410
0150	Blues		1.35	5.926		97.50	223		320.50	410
0200	Greens		1.35	5.926		101	223		324	414
0250	Premium colors		1.35	5.926		101	223		324	414
0500	Shakes, 13" x 16-1/2", 90 per sq., 950 lb. per sq.									
0600	All colors, nailed to wood deck	1 Rats	1.50	5.333	Sq.	83	200		283	360
1500	Accessory pieces, ridge & hip, 10" x 16-1/2", 8 lb. each	"	120	.067	Eq.	3.64	2.50		6.14	
1700	Rake, 6-1/2" x 16-3/4", 9 lb. each					3.64			3.64	
1800	Mansard hip, 10" x 16-1/2", 9.2 lb. each					3.64			3.64	

32 Roof Tiles

32 16 – Concrete Roof Tiles

32 16.10 Concrete Tiles	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
Hip starter, 10" x 16-1/2", 10.5 lb. each				Eq.	11.45			11.45	12.60
3 or 4 way apex, 10" each side, 11.5 lb. each				▼	13.25			13.25	14.55

32 19 – Metal Roof Tiles

32 19.10 Metal Roof Tiles

METAL ROOF TILES									
Accessories included, .032" thick aluminum, mission tile	1 Corp	2.50	3.200	Sq.	815	141		956	1,100
Spanish tiles	"	3	2.667	"	560	118		678	795

33 Natural Roof Coverings

33 63 – Vegetated Roofing

33 63.10 Green Roof Systems

GREEN ROOF SYSTEMS									
Soil mixture for green roof 30% sand, 55% gravel, 15% soil	G								
Hoist and spread soil mixture 4 inch depth up to five stories toll roof	G	B-13B	4000	.014	S.F.	.25	.53	.28	1.06 1.38
6 inch depth	G		2667	.021		.37	.80	.41	1.58 2.08
8 inch depth	G		2000	.028		.50	1.07	.55	2.12 2.79
10 inch depth	G		1600	.035		.62	1.33	.69	2.64 3.49
12 inch depth	G		1335	.042		.75	1.60	.82	3.17 4.17
Alt. mon-mode soil mix, hoist & spread, 4" deep up to 5 stories toll roof	G	▼	4000	.014	▼	1.50	.53	.28	2.31 2.76
Mobilization 55 ton crane to site	G	1 Eqhv	3.60	2.222	Eq.		106		106 160
Hoisting cost to five stories per day (Avg. 28 picks per day)	G	B-13B	1	56	Day		2,125	1,100	3,225 4,450
Mobilization or demobilization, 100 ton crane to site driver & escort	G	A-3E	2.50	6.400	Eq.		266	55.50	321.50 460
Hoisting cost six to ten stories per day (Avg. 21 picks per day)	G	B-13C	1	56	Day		2,125	1,625	3,750 5,050
Hoist and spread soil mixture 4 inch depth six to ten stories toll roof	G		4000	.014	S.F.	.25	.53	.41	1.19 1.53
6 inch depth	G		2667	.021		.37	.80	.61	1.78 2.30
8 inch depth	G		2000	.028		.50	1.07	.81	2.38 3.08
10 inch depth	G		1600	.035		.62	1.33	1.02	2.97 3.85
12 inch depth	G	▼	1335	.042	▼	.75	1.60	1.22	3.57 4.60
Green roof edging treated lumber 4" x 4" no hoisting included	G	2 Corp	400	.040	L.F.	.82	1.76		2.58 3.61
4" x 6"	G		400	.040		2.11	1.76		3.87 5.05
4" x 8"	G		360	.044		4.32	1.96		6.28 7.80
4" x 6" double stacked	G		300	.053		4.21	2.35		6.56 8.25
Green roof edging redwood lumber 4" x 4" no hoisting included	G		400	.040		6.40	1.76		8.16 9.75
4" x 6"	G		400	.040		11.20	1.76		12.96 15
4" x 8"	G		360	.044		20.50	1.96		22.46 25.50
4" x 6" double stacked	G	▼	300	.053	▼	22.50	2.35		24.85 28
Roof membrane and root barrier, not including insulation:	G								
Fluid applied rubber membrane, reinforced, 215 mil thick	G	G-5	350	.114	S.F.	.26	3.88	.51	4.65 7.35
Root barrier	G	2 Rofc	775	.021		.70	.77		1.47 2.06
Moisture retention barrier and reservoir	G	"	900	.018		2.70	.67		3.37 4.08
Planting sedum, light soil, potted, 2-1/4" diameter, two per S.F.	G	1 Clob	420	.019		5	.67		5.67 6.55
one per S.F.	G	"	840	.010		2.50	.33		2.83 3.26
Planting sedum mat per S.F. including shipping (4000 S.F. min)	G	4 Clob	4000	.008		6	.28		6.28 7.05
Installation sedum mat system (no soil required) per S.F. (4000 S.F. min)	G	"	4000	.008	▼	8.35	.28		8.63 9.65
Note: pricing of sedum mats shipped in full truck loads (4000-5000 S.F.)									

07 41 Roof Panels

07 41 13 - Metal Roof Panels

07 41 13.10 Aluminum Roof Panels		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O
							Labor	Equipment		
0010	ALUMINUM ROOF PANELS									
0020	Corrugated ar ribbed, .0155" thick, natural	G-3	1200	.027	S.F.	.98	1.16		2.14	
0300	Painted		1200	.027		1.43	1.16		2.59	
0400	Corrugated, .018" thick, an steel frame, natural finish		1200	.027		1.29	1.16		2.45	
0600	Painted		1200	.027		1.58	1.16		2.74	
0700	Corrugated, an steel frame, natural, .024" thick		1200	.027		1.83	1.16		2.99	
0800	Painted		1200	.027		2.23	1.16		3.39	
0900	.032" thick, natural		1200	.027		2.36	1.16		3.52	
1200	Painted		1200	.027		3.03	1.16		4.19	
1300	V-Beam, an steel frame construction, .032" thick, natural		1200	.027		2.50	1.16		3.66	
1500	Painted		1200	.027		3.07	1.16		4.23	
1600	.040" thick, natural		1200	.027		3.04	1.16		4.20	
1800	Painted		1200	.027		3.66	1.16		4.82	
1900	.050" thick, natural		1200	.027		3.65	1.16		4.81	
2100	Painted		1200	.027		4.41	1.16		5.57	
2200	For roofing an wood frame, deduct		4600	.007		.08	.30		.38	
2400	Ridge cap, .032" thick, natural		800	.040	L.F.	2.88	1.75		4.63	

07 41 13.20 Steel Roofing Panels

0010	STEEL ROOFING PANELS									
0012	Corrugated ar ribbed, an steel framing, 30 ga galv	G-3	1100	.029	S.F.	1.75	1.27		3.02	
0100	28 ga		1050	.030		1.86	1.33		3.19	
0300	26 ga		1000	.032		1.92	1.40		3.32	
0400	24 ga		950	.034		3.03	1.47		4.50	
0600	Colared, 28 ga		1050	.030		1.75	1.33		3.08	
0700	26 ga		1000	.032		2.07	1.40		3.47	
0710	Flat profile, 1-3/4" standing seams, 10" wide, standard finish, 26 ga		1000	.032		4.05	1.40		5.45	
0715	24 ga		950	.034		4.69	1.47		6.16	
0720	22 ga		900	.036		5.80	1.55		7.35	
0725	Zinc aluminum alloy finish, 26 ga		1000	.032		3.17	1.40		4.57	
0730	24 ga		950	.034		3.79	1.47		5.26	
0735	22 ga		900	.036		4.34	1.55		5.89	
0740	12" wide, standard finish, 26 ga		1000	.032		4.04	1.40		5.44	
0745	24 ga		950	.034		5.30	1.47		6.77	
0750	Zinc aluminum alloy finish, 26 ga		1000	.032		4.59	1.40		5.99	
0755	24 ga		950	.034		3.78	1.47		5.25	
0840	Flat profile, 1" x 3/8" batten, 12" wide, standard finish, 26 ga		1000	.032		3.56	1.40		4.96	
0845	24 ga		950	.034		4.17	1.47		5.64	
0850	22 ga		900	.036		4.99	1.55		6.54	
0855	Zinc aluminum alloy finish, 26 ga		1000	.032		3.41	1.40		4.81	
0860	24 ga		950	.034		3.81	1.47		5.28	
0865	22 ga		900	.036		4.40	1.55		5.95	
0870	16-1/2" wide, standard finish, 24 ga		950	.034		4.11	1.47		5.58	
0875	22 ga		900	.036		4.60	1.55		6.15	
0880	Zinc aluminum alloy finish, 24 ga		950	.034		3.59	1.47		5.06	
0885	22 ga		900	.036		4	1.55		5.55	
0890	Flat profile, 2" x 2" batten, 12" wide, standard finish, 26 ga		1000	.032		4.09	1.40		5.49	
0895	24 ga		950	.034		4.88	1.47		6.35	
0900	22 ga		900	.036		6	1.55		7.55	
0905	Zinc aluminum alloy finish, 26 ga		1000	.032		3.81	1.40		5.21	
0910	24 ga		950	.034		4.35	1.47		5.82	
0915	22 ga		900	.036		5.05	1.55		6.60	
0920	16-1/2" wide, standard finish, 24 ga		950	.034		4.49	1.47		5.96	

7 41 Roof Panels

7 41 13 – Metal Roof Panels

41 13.20 Steel Roofing Panels	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
25 22 ga	G-3	900	.036	S.F.	5.25	1.55		6.80	8.15
30 Zinc aluminum alloy finish, 24 ga		950	.034		4.07	1.47		5.54	6.75
35 22 ga		900	.036	▼	4.63	1.55		6.18	7.45
00 Ridge, galvanized, 10" wide		800	.040	L.F.	3.18	1.75		4.93	6.15
10 20" wide	▼	750	.043	"	4.50	1.86		6.36	7.80

7 41 33 – Plastic Roof Panels

41 33.10 Fiberglass Panels

FIBERGLASS PANELS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
12 Corrugated panels, roofing, 8 oz. per S.F.	G-3	1000	.032	S.F.	1.90	1.40		3.30	4.23
00 12 oz. per S.F.		1000	.032		3.44	1.40		4.84	5.90
00 Corrugated siding, 6 oz. per S.F.		880	.036		1.61	1.59		3.20	4.20
00 8 oz. per S.F.		880	.036		1.90	1.59		3.49	4.52
00 Fire retardant		880	.036		3.24	1.59		4.83	6
00 12 oz. siding, textured		880	.036		3.41	1.59		5	6.20
00 Fire retardant		880	.036		4.53	1.59		6.12	7.40
00 Flat panels, 6 oz. per S.F., clear or colors		880	.036		2.01	1.59		3.60	4.64
00 Fire retardant, class A		880	.036		3.28	1.59		4.87	6.05
00 8 oz. per S.F., clear or colors		880	.036		2.21	1.59		3.80	4.86
00 Sandwich panels, fiberglass, 1-9/16" thick, panels to 20 S.F.		180	.178		23.50	7.75		31.25	38
00 As above, but 2-3/4" thick, panels to 100 S.F.	▼	265	.121	▼	17.50	5.25		22.75	27.50

7 42 Wall Panels

7 42 13 – Metal Wall Panels

42 13.10 Mansard Panels

MANSARD PANELS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
00 Aluminum, stock units, straight surfaces	1 Shee	115	.070	S.F.	3.41	3.63		7.04	9.30
00 Concave or convex surfaces		75	.107	"	3.74	5.55		9.29	12.60
00 For framing, to 5' high, add		115	.070	L.F.	3.74	3.63		7.37	9.65
00 Saffits, to 1' wide	▼	125	.064	S.F.	1.85	3.34		5.19	7.15

42 13.20 Aluminum Siding Panels

ALUMINUM SIDING PANELS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
12 Corrugated, on steel framing, .019 thick, natural finish	G-3	775	.041	S.F.	1.50	1.80		3.30	4.41
00 Painted		775	.041		1.61	1.80		3.41	4.53
00 Farm type, .021" thick on steel frame, natural		775	.041		1.51	1.80		3.31	4.42
00 Painted		775	.041		1.61	1.80		3.41	4.53
00 Industrial type, corrugated, on steel, .024" thick, mill		775	.041		2.10	1.80		3.90	5.05
00 Painted		775	.041		2.26	1.80		4.06	5.25
00 .032" thick, mill		775	.041		2.42	1.80		4.22	5.40
00 Painted		775	.041		2.94	1.80		4.74	6
00 V-Beam, on steel frame, .032" thick, mill		775	.041		2.72	1.80		4.52	5.75
00 Painted		775	.041		3.12	1.80		4.92	6.20
00 .040" thick, mill		775	.041		3.31	1.80		5.11	6.40
00 Painted		775	.041		3.87	1.80		5.67	7
00 .050" thick, mill		775	.041		3.91	1.80		5.71	7.05
00 Painted		775	.041		4.66	1.80		6.46	7.90
00 Ribbed, 3" profile, on steel frame, .032" thick, natural		775	.041		2.35	1.80		4.15	5.35
00 Painted		775	.041		2.98	1.80		4.78	6.05
00 .040" thick, natural		775	.041		2.69	1.80		4.49	5.70
00 Painted		775	.041		3.14	1.80		4.94	6.20
50 .050" thick, natural	▼	775	.041	▼	3.10	1.80		4.90	6.15

07 42 Wall Panels

07 42 13 - Metal Wall Panels

07 42 13.20 Aluminum Siding Panels

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl. O&P
2760	Painted	G-3	775	.041	S.F.	3.56	1.80		5.36	6.27
3300	For siding on wood frame, deduct from above	▼	2800	.011	▼	.09	.50		.59	.36
3400	Screw fasteners, aluminum, self topping, neoprene washer, 1"				M	204			204	274
3600	Stitch screws, self topping, with neoprene washer, 5/8"				"	153			153	168
3630	Flashing, sidewall, .032" thick	G-3	800	.040	L.F.	2.82	1.75		4.57	5.27
3650	End wall, .040" thick		800	.040		3.30	1.75		5.05	5.80
3670	Closure strips, corrugated, .032" thick		800	.040		.84	1.75		2.59	2.99
3680	Ribbed, 4" or 8", .032" thick		800	.040		.84	1.75		2.59	2.99
3690	V-beam, .040" thick	▼	800	.040	▼	1.13	1.75		2.88	3.39
3800	Horizontal, colored clapboard, 8" wide, plain	2 Carp	515	.031	S.F.	2.21	1.37		3.58	4.19
3810	Insulated		515	.031		2.36	1.37		3.73	4.34
4000	Vertical board & batten, colored, non-insulated	▼	515	.031		1.68	1.37		3.05	3.56
4200	For simulated wood design, odd				▼	.10			.10	.11
4300	Corners for above, outside	2 Carp	515	.031	V.L.F.	3.25	1.37		4.62	5.33
4500	Inside corners	"	515	.031	"	1.42	1.37		2.79	3.20
4600	Sandwich panels, 1" insulation, single story	G-3	395	.081	S.F.	7.45	3.53		10.98	12.69
4900	Multi-story	"	345	.093		10.50	4.05		14.55	17.24
5100	For baked enamel finish 1 side, odd				▼	.41			.41	.42

07 42 13.30 Steel Siding

0010	STEEL SIDING									
0020	Beveled, vinyl coated, 8" wide	1 Carp	265	.030	S.F.	2.05	1.33		3.38	3.99
0050	10" wide	"	275	.029		2.19	1.28		3.47	4.08
0080	Galv, corrugated or ribbed, on steel frame, 30 gauge	G-3	800	.040		1.37	1.75		3.12	3.63
0100	28 gauge		795	.040		1.44	1.76		3.20	3.71
0300	26 gauge		790	.041		2.02	1.77		3.79	4.40
0400	24 gauge	"	785	.041		2.03	1.78		3.81	4.42
0600	22 gauge		770	.042		2.34	1.81		4.15	4.76
0700	Colored, corrugated/ribbed, on steel frame, 10 yr. finish, 28 ga.		800	.040		2.13	1.75		3.88	4.49
0900	26 gauge		795	.040		2.23	1.76		3.99	4.60
1000	24 gauge		790	.041		2.59	1.77		4.36	4.97
1020	20 gauge		785	.041		3.29	1.78		5.07	5.68
1200	Factory sandwich panel, 26 ga., 1" insulation, galvanized		380	.084		5.45	3.67		9.12	10.73
1300	Colored 1 side		380	.084		6.70	3.67		10.37	11.98
1500	Galvanized 2 sides		380	.084		8.30	3.67		11.97	13.58
1600	Colored 2 sides		380	.084		8.60	3.67		12.27	13.88
1800	Acrylic paint face, regular paint liner	▼	380	.084		6.50	3.67		10.17	11.78
1900	For 2" thick polystyrene, add					1			1	1.1
2000	22 ga, galv, 2" insulation, baked enamel exterior	G-3	360	.089		12.70	3.88		16.58	18.19
2100	Polyvinylidene exterior finish	"	360	.089	▼	13.35	3.88		17.23	18.84

07 44 Faced Panels

07 44 73 - Metal Faced Panels

07 44 73.10 Metal Faced Panels and Accessories

0010	METAL FACED PANELS AND ACCESSORIES									
0400	Textured aluminum, 4' x 8' x 5/16" plywood backing, single face	2 Shee	375	.043	S.F.	3.67	2.23		5.90	7.41
0600	Double face		375	.043		4.99	2.23		7.22	8.73
0700	4' x 10' x 5/16" plywood backing, single face		375	.043		3.93	2.23		6.16	7.67
0900	Double face		375	.043		5.25	2.23		7.48	8.99
1000	4' x 12' x 5/16" plywood backing, single face		375	.043		3.33	2.23		5.56	7.07
1300	Smooth aluminum, 1/4" plywood panel, fluoropolymer finish, double face		375	.043		5.45	2.23		7.68	9.19
1350	Clear anodized finish, double face	▼	375	.043	▼	9.55	2.23		11.78	13.29

44 Faced Panels

44 73 - Metal Faced Panels

44 73.10 Metal Faced Panels and Accessories

	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Double face textured aluminum, structural panel, 1" EPS insulation	2 Shee	375	.043	S.F.	4.92	2.23		7.15	8.80
Accessories, outside corner	1 Shee	175	.046	L.F.	1.90	2.38		4.28	5.70
Inside corner		175	.046		1.34	2.38		3.72	5.10
Batten mounting clip		200	.040		.49	2.09		2.58	3.72
Low profile batten		480	.017		.61	.87		1.48	2
High profile batten		480	.017		1.41	.87		2.28	2.88
Water table		200	.040		2.12	2.09		4.21	5.50
Horizontal joint connector		200	.040		1.67	2.09		3.76	5
Corner cap		200	.040		1.84	2.09		3.93	5.20
H - moulding		480	.017		1.25	.87		2.12	2.71

46 Siding

46 23 - Wood Siding

46 23.10 Wood Board Siding

WOOD BOARD SIDING									
Wood, cedar bevel, A grade, 1/2" x 6"	1 Corp	295	.027	S.F.	4.35	1.20		5.55	6.65
1/2" x 8"		330	.024		6.30	1.07		7.37	8.60
3/4" x 10", clear grade		375	.021		5.90	.94		6.84	7.95
"B" grade		375	.021		3.79	.94		4.73	5.60
Cedar, rough sawn, 1" x 4", A grade, natural		220	.036		3.88	1.60		5.48	6.75
Stained		220	.036		4.25	1.60		5.85	7.15
1" x 12", board & batten, #3 & Btr., natural		420	.019		4.02	.84		4.86	5.70
Stained		420	.019		4.25	.84		5.09	5.95
1" x 8" channel siding, #3 & Btr., natural		330	.024		2.97	1.07		4.04	4.90
Stained		330	.024		2.71	1.07		3.78	4.62
Redwood, clear, beveled, vertical grain, 1/2" x 4"		220	.036		3.85	1.60		5.45	6.70
1/2" x 6"		295	.027		3.85	1.20		5.05	6.10
1/2" x 8"		330	.024		4.10	1.07		5.17	6.15
3/4" x 10"		375	.021		4.12	.94		5.06	6
Channel siding, 1" x 10", B grade		375	.021		4.12	.94		5.06	6
Redwood, T&G boards, B grade, 1" x 4"		220	.036		2.54	1.60		4.14	5.25
1" x 8"		330	.024		4.10	1.07		5.17	6.15
White pine, rough sawn, 1" x 8", natural		330	.024		2	1.07		3.07	3.84
Stained		330	.024		2.20	1.07		3.27	4.06

46 29 - Plywood Siding

46 29.10 Plywood Siding Options

PLYWOOD SIDING OPTIONS									
Plywood, medium density overlaid, 3/8" thick	2 Corp	750	.021	S.F.	1.15	.94		2.09	2.72
1/2" thick		700	.023		1.26	1.01		2.27	2.94
3/4" thick		650	.025		1.65	1.09		2.74	3.49
Texture 1-11, cedar, 5/8" thick, natural		675	.024		2.43	1.05		3.48	4.28
Factory stained		675	.024		2.69	1.05		3.74	4.57
Texture 1-11, fir, 5/8" thick, natural		675	.024		1.06	1.05		2.11	2.78
Factory stained		675	.024		1.32	1.05		2.37	3.06
Texture 1-11, S.Y.P., 5/8" thick, natural		675	.024		1.19	1.05		2.24	2.92
Factory stained		675	.024		1.24	1.05		2.29	2.97
Rough sawn cedar, 3/8" thick, natural		675	.024		1.20	1.05		2.25	2.93
Factory stained		675	.024		1.46	1.05		2.51	3.22
Rough sawn fir, 3/8" thick, natural		675	.024		.76	1.05		1.81	2.45
Factory stained		675	.024		1.02	1.05		2.07	2.73

07 46 Siding

07 46 29 - Plywood Siding

07 46 29.10 Plywood Siding Options		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl
							Labor	Equipment		
2800	Redwood, textured siding, 5/8" thick	2 Carp	675	.024	S.F.	1.92	1.05		2.97	
3000	Polyvinyl chloride coated, 3/8" thick	↓	750	.021	↓	1.11	.94		2.05	

07 46 33 - Plastic Siding

07 46 33.10 Vinyl Siding

0010 VINYL SIDING										
3995	Clapboard profile, woodgrain texture, .048 thick, double 4	2 Carp	495	.032	S.F.	.85	1.43		2.28	
4000	Double 5		550	.029		.85	1.28		2.13	
4005	Single 8		495	.032		.98	1.43		2.41	
4010	Single 10		550	.029		1.18	1.28		2.46	
4015	.044 thick, double 4		495	.032		.82	1.43		2.25	
4020	Double 5		550	.029		.82	1.28		2.10	
4025	.042 thick, double 4		495	.032		.82	1.43		2.25	
4030	Double 5		550	.029		.82	1.28		2.10	
4035	Cross sawn texture, .040 thick, double 4		495	.032		.58	1.43		2.01	
4040	Double 5		550	.029		.58	1.28		1.86	
4045	Smooth texture, .042 thick, double 4		495	.032		.68	1.43		2.11	
4050	Double 5		550	.029		.73	1.28		2.01	
4055	Single 8		495	.032		.94	1.43		2.37	
4060	Cedar texture, .044 thick, double 4		495	.032		.87	1.43		2.30	
4065	Double 6		600	.027		.87	1.18		2.05	
4070	Dutch lap profile, woodgrain texture, .048 thick, double 5		550	.029		.85	1.28		2.13	
4075	.044 thick, double 4.5		525	.030		.87	1.34		2.21	
4080	.042 thick, double 4.5		525	.030		.74	1.34		2.08	
4085	.040 thick, double 4.5		525	.030		.58	1.34		1.92	
4090	Shingle profile, random grooves, double 7		400	.040		2.73	1.76		4.49	
4095	Triple 5		400	.040		2.72	1.76		4.48	
4100	Shake profile, 10" wide		400	.040		2.91	1.76		4.67	
4105	Vertical pattern, .046 thick, double 5		550	.029		1.22	1.28		2.50	
4110	.044 thick, triple 3		550	.029		1.31	1.28		2.59	
4115	.040 thick, triple 4		550	.029		1.25	1.28		2.53	
4120	.040 thick, triple 2.66		550	.029		1.41	1.28		2.69	
4125	Insulation, fan folded extruded polystyrene, 1/4"		2000	.008		.27	.35		.62	
4130	3/8"		2000	.008		.30	.35		.65	
4135	Accessories, 1 channel, 5/8" pocket		700	.023	L.F.	.38	1.01		1.39	
4140	3/4" pocket		695	.023		.40	1.02		1.42	
4145	1-1/4" pocket		680	.024		.59	1.04		1.63	
4150	Flexible, 3/4" pocket		600	.027		1.92	1.18		3.10	
4155	Under sill finish trim		500	.032		.41	1.41		1.82	
4160	Vinyl starter strip		700	.023		.42	1.01		1.43	
4165	Aluminum starter strip		700	.023		.34	1.01		1.35	
4170	Window casing, 2-1/2" wide, 3/4" pocket		510	.031		1.22	1.38		2.60	
4175	Outside corner, woodgrain finish, 4" face, 3/4" pocket		700	.023		1.58	1.01		2.59	
4180	5/8" pocket		700	.023		1.66	1.01		2.67	
4185	Smooth finish, 4" face, 3/4" pocket		700	.023		1.58	1.01		2.59	
4190	7/8" pocket		690	.023		1.55	1.02		2.57	
4195	1-1/4" pocket		700	.023		1.11	1.01		2.12	
4200	Soffit and fascia, 1' overhang, solid		120	.133		3.35	5.90		9.25	
4205	Vented		120	.133		3.35	5.90		9.25	
4207	18" overhang, solid		110	.145		3.96	6.40		10.36	
4208	Vented		110	.145		3.96	6.40		10.36	
4210	2' overhang, solid		100	.160		4.57	7.05		11.62	
4215	Vented		100	.160		4.57	7.05		11.62	

46 Siding

46 33 - Plastic Siding

5 33.10 Vinyl Siding	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
3' overhang, solid	2 Corp	100	.160	L.F.	5.80	7.05		12.85	17.20
Vented	▼	100	.160	▼	5.80	7.05		12.85	17.20
Colors for siding and soffits, add				S.F.	.16			.16	.18
Colors for accessories and trim, add				L.F.	.32			.32	.35

46 46 - Fiber Cement Siding

46 46.10 Fiber Cement Siding

FIBER CEMENT SIDING	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Lap siding, 5/16" thick, 6" wide, 4-3/4" exposure, smooth texture	2 Corp	415	.039	S.F.	1.08	1.70		2.78	3.81
Woodgrain texture		415	.039		1.08	1.70		2.78	3.81
7-1/2" wide, 6-1/4" exposure, smooth texture		425	.038		1.04	1.66		2.70	3.69
Woodgrain texture		425	.038		1.04	1.66		2.70	3.69
8" wide, 6-3/4" exposure, smooth texture		425	.038		1.24	1.66		2.90	3.92
Roughsawn texture		425	.038		1.24	1.66		2.90	3.92
9-1/2" wide, 8-1/4" exposure, smooth texture		440	.036		.93	1.60		2.53	3.49
Woodgrain texture		440	.036		.93	1.60		2.53	3.49
12" wide, 10-3/8" exposure, smooth texture		455	.035		1.21	1.55		2.76	3.72
Woodgrain texture		455	.035		1.21	1.55		2.76	3.72
Panel siding, 5/16" thick, smooth texture		750	.021		1.17	.94		2.11	2.74
Stucco texture		750	.021		1.17	.94		2.11	2.74
Grooved woodgrain texture		750	.021		1.17	.94		2.11	2.74
V-grooved woodgrain texture		750	.021	▼	1.17	.94		2.11	2.74
Wood starter strip	▼	400	.040	L.F.	.43	1.76		2.19	3.18

46 73 - Soffit

46 73.10 Soffit Options

SOFFIT OPTIONS	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Aluminum, residential, .020" thick	1 Corp	210	.038	S.F.	1.96	1.68		3.64	4.75
Baked enamel on steel, 16 or 18 gauge		105	.076		5.80	3.36		9.16	11.55
Polyvinyl chloride, white, solid		230	.035		2.04	1.53		3.57	4.60
Perforated	▼	230	.035	▼	2.04	1.53		3.57	4.60
For colors, add					.12			.12	.13

7 51 Built-Up Bituminous Roofing

51 13 - Built-Up Asphalt Roofing

51 13.10 Built-Up Roofing Components

BUILT-UP ROOFING COMPONENTS	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Asphalt saturated felt, #30, 2 square per roll	1 Rofc	58	.138	Sq.	11.30	5.15		16.45	21
#15, 4 sq per roll, plain or perforated, not mopped		58	.138		5.65	5.15		10.80	14.90
Roll roofing, smooth, #65		15	.533		9.65	19.95		29.60	44
#90		12	.667		34.50	25		59.50	80
Mineralized		12	.667		34.50	25		59.50	80
D.C. (Double coverage), 19" selvage edge	▼	10	.800	▼	44	30		74	98
Adhesive (top cement)				Gal.	5.50			5.50	6.05
Steep, flat or dead level asphalt, 10 ton lots, bulk				Ton	455			455	500
Packaged				"	780			780	860

51 13.13 Cold-Applied Built-Up Asphalt Roofing

COLD-APPLIED BUILT-UP ASPHALT ROOFING	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
3 ply system, installation only (components listed below)	G-5	50	.800	Sq.		27	3.58	30.58	49.50
Spunbond poly. fabric, 1.35 oz./S.Y., 36"W, 10.8 sq./roll				Eq.	175			175	193
49" wide, 14.6 sq./roll					244			244	268
2.10 oz./S.Y., 36" wide, 10.8 sq./roll				▼	266			266	293

07 51 Built-Up Bituminous Roofing

07 51 13 – Built-Up Asphalt Roofing

07 51 13.13 Cold-Applied Built-Up Asphalt Roofing				Daily Labor- Crew Output Hours	Unit	Material	2012 Base Costs		Total	Per Sq. Ft.
							Labor	Equipment		
0400	49" wide, 14.6 sq./roll				Eo.	360			360	
0500	Base & finish coat, 3 gal./sq., 5 gal./can				Gal.	7.60			7.60	
0600	Coating, ceramic granules, 1/2 sq./bag				Ea.	15.15			15.15	
0700	Aluminum, 2 gal./sq.				Gal.	12.30			12.30	
0800	Emulsion, fibered or non-fibered, 4 gal./sq.				"	5.20			5.20	

07 51 13.20 Built-Up Roofing Systems

BUILT-UP ROOFING SYSTEMS				R075113-20						
0100	Asphalt flood coat with gravel/slog surfacing, not including									
0140	Insulation, flashing or wood nailers									
0200	Asphalt base sheet, 3 plies #15 asphalt felt, mapped	G-1	22	2.545	Sq.	88	89	20.50	197.50	
0350	On nailable decks		21	2.667		92.50	93	21.50	207	
0500	4 plies #15 asphalt felt, mapped		20	2.800		122	98	22.50	242.50	
0550	On nailable decks		19	2.947		109	103	24	236	
0700	Coated glass base sheet, 2 plies glass (type IV), mapped		22	2.545		90.50	89	20.50	200	
0850	3 plies glass, mopped		20	2.800		108	98	22.50	228.50	
0950	On nailable decks		19	2.947		102	103	24	229	
1100	4 plies glass fiber felt (type IV), mopped		20	2.800		133	98	22.50	253.50	
1150	On nailable decks		19	2.947		119	103	24	246	
1200	Coated & saturated base sheet, 3 plies #15 asph. felt, mopped		20	2.800		98	98	22.50	218.50	
1250	On nailable decks		19	2.947		91.50	103	24	218.50	
1300	4 plies #15 asphalt felt, mopped		22	2.545		114	89	20.50	223.50	
2000	Asphalt flood coat, smooth surface									
2200	Asphalt base sheet & 3 plies #15 asphalt felt, mapped	G-1	24	2.333	Sq.	94.50	81.50	18.85	194.85	
2400	On nailable decks		23	2.435		88	85	19.65	192.65	
2600	4 plies #15 asphalt felt, mapped		24	2.333		111	81.50	18.85	211.35	
2700	On nailable decks		23	2.435		104	85	19.65	208.65	
2900	Coated glass fiber base sheet, mapped, and 2 plies of									
2910	glass fiber felt (type IV)	G-1	25	2.240	Sq.	86	78.50	18.10	182.60	
3100	On nailable decks		24	2.333		81	81.50	18.85	181.35	
3200	3 plies, mapped		23	2.435		104	85	19.65	208.65	
3300	On nailable decks		22	2.545		97	89	20.50	206.50	
3800	4 plies glass fiber felt (type IV), mapped		23	2.435		122	85	19.65	226.65	
3900	On nailable decks		22	2.545		115	89	20.50	224.50	
4000	Coated & saturated base sheet, 3 plies #15 asph. felt, mapped		24	2.333		93.50	81.50	18.85	193.85	
4200	On nailable decks		23	2.435		87	85	19.65	191.65	
4300	4 plies #15 organic felt, mapped		22	2.545		110	89	20.50	219.50	
4500	Coal tar pitch with gravel/slog surfacing									
4600	4 plies #15 torred felt, mapped	G-1	21	2.667	Sq.	186	93	21.50	300.50	
4800	3 plies glass fiber felt (type IV), mapped	"	19	2.947	"	154	103	24	281	
5000	Coated glass fiber base sheet, and 2 plies of									
5010	glass fiber felt, (type IV), mapped	G-1	19	2.947	Sq.	159	103	24	286	
5300	On nailable decks		18	3.111		138	109	25	272	
5600	4 plies glass fiber felt (type IV), mapped		21	2.667		213	93	21.50	327.50	
5800	On nailable decks		20	2.800		193	98	22.50	313.50	

07 51 13.30 Cants

CANTS										
0010	Lumber, treated, 4" x 4" cut diagonally	1 R/cf	325	.025	L.F.	2.02	.92		2.94	
0100	Foamglass		325	.025		2.25	.92		3.17	
0300	Mineral or fiber, trapezoidal, 1" x 4" x 48"		325	.025		.19	.92		1.11	
0400	1-1/2" x 5-5/8" x 48"		325	.025		.31	.92		1.23	

51 Built-Up Bituminous Roofing

1 13 - Built-Up Asphalt Roofing

13.40 Felts	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
FELTS									
Gloss fibered roofing felt, #15, not mopped	1 Rofc	58	.138	Sq.	6.90	5.15		12.05	16.25
Base sheet, #45, channel vented		58	.138		32.50	5.15		37.65	44
#50, coated		58	.138		16.55	5.15		21.70	27
Cop, mineral surfaced		58	.138		45	5.15		50.15	58
Floshing membrone, #65		16	.500		9.65	18.70		28.35	42
Cool tor fibered, #15, no mopping		58	.138		14.05	5.15		19.20	24
Asphalt felt, #15, 4 sq per roll, no mopping		58	.138		5.65	5.15		10.80	14.90
#30, 2 sq per roll		58	.138		11.30	5.15		16.45	21
Double coated, #33		58	.138		9.95	5.15		15.10	19.60
#40, base sheet		58	.138		10.95	5.15		16.10	20.50
Coated and saturated		58	.138		10	5.15		15.15	19.65
Tarred felt, organic, #15, 4 sq rolls		58	.138		11.55	5.15		16.70	21.50
#30, 2 sq roll		58	.138		23	5.15		28.15	34
Add for mopping above felts, per ply, ospholt, 24 lb. per sq.	G-1	192	.292		9.35	10.20	2.36	21.91	30
Cool tor mopping, 30 lb. per sq.		186	.301		18	10.55	2.43	30.98	40
Flood coat, with asphalt, 60 lb. per sq.		60	.933		23.50	32.50	7.55	63.55	88.50
With cool tor, 75 lb. per sq.		56	1		45	35	8.10	88.10	117

1 13.50 Walkways for Built-Up Roofs

WALKWAYS FOR BUILT-UP ROOFS									
Asphalt impregnated, 3' x 6' x 1/2" thick	1 Rofc	400	.020	S.F.	1.73	.75		2.48	3.15
3' x 3' x 3/4" thick	"	400	.020		4.99	.75		5.74	6.75
Concrete patio blocks, 2" thick, natural	1 Clob	115	.070		3.73	2.44		6.17	7.85
Colors	"	115	.070		3.77	2.44		6.21	7.90

52 Modified Bituminous Membrane Roofing

52 13 - Atactic-Polypropylene-Modified Bituminous Membrane Roofing

2 13.10 APP Modified Bituminous Membrane

APP MODIFIED BITUMINOUS MEMBRANE									
R075213-30									
Base sheet, #15 gloss fiber felt, nailed to deck	1 Rofc	58	.138	Sq.	7.85	5.15		13	17.25
Spot mopped to deck	G-1	295	.190		11.60	6.65	1.53	19.78	25.50
Fully mopped to deck	"	192	.292		16.25	10.20	2.36	28.81	37.50
#15 organic felt, nailed to deck	1 Rofc	58	.138		6.60	5.15		11.75	15.90
Spot mopped to deck	G-1	295	.190		10.35	6.65	1.53	18.53	24
Fully mopped to deck	"	192	.292		15	10.20	2.36	27.56	36
APP mod., smooth surf. cop sheet, poly. reinf., torched, 160 mils	G-5	2100	.019	S.F.	.52	.65	.09	1.26	1.75
170 mils		2100	.019		.55	.65	.09	1.29	1.79
Granule surface cop sheet, poly. reinf., torched, 180 mils		2000	.020		.62	.68	.09	1.39	1.92
Smooth surface floshing, torched, 160 mils		1260	.032		.52	1.08	.14	1.74	2.54
170 mils		1260	.032		.55	1.08	.14	1.77	2.58
Granule surface floshing, torched, 180 mils		1260	.032		.62	1.08	.14	1.84	2.65
Fibroted aluminum coating	1 Rofc	3800	.002		.10	.08		.18	.24

52 16 - Styrene-Butadiene-Styrene Modified Bituminous Membrane Roofing

52 16.10 SBS Modified Bituminous Membrane

SBS MODIFIED BITUMINOUS MEMBRANE									
SBS modified, granule surf cop sheet, polyester rein., mopped									
150 mils	G-1	2000	.028	S.F.	.58	.98	.23	1.79	2.53
160 mils		2000	.028		.77	.98	.23	1.98	2.74
Gloss fiber reinforced, mopped, 160 mils		2000	.028		.49	.98	.23	1.70	2.43
Smooth surface cop sheet, mopped, 145 mils		2100	.027		.49	.93	.22	1.64	2.34

07 52 Modified Bituminous Membrane Roofing

07 52 16 – Styrene-Butadiene-Styrene Modified Bituminous Membrane Roofing

07 52 16.10 SBS Modified Bituminous Membrane		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl.
							Labor	Equipment		
1700	Smooth surface flashing, 145 mils	G-1	1260	.044	S.F.	.49	1.55	.36	2.40	
1800	150 mils		1260	.044		.48	1.55	.36	2.39	
1900	Granular surface flashing, 150 mils		1260	.044		.58	1.55	.36	2.49	
2000	160 mils		1260	.044		.77	1.55	.36	2.68	

07 53 Elastomeric Membrane Roofing

07 53 16 – Chlorosulfonate-Polyethylene Roofing

07 53 16.10 Chlorosulfonated Polyethylene Roofing

0010	CHLOROSULFONATED POLYETHYLENE ROOFING									
0800	Chlorosulfonated polyethylene-hypalon (CSPE), 45 mils,									
0900	0.29 P.S.F., fully adhered	G-5	26	1.538	Sq.	189	52.50	6.90	248.40	
1100	Loose-laid & ballasted with stone (10 P.S.F.)		51	.784		197	26.50	3.51	227.01	
1200	Mechanically attached		35	1.143		190	39	5.10	234.10	
1300	Plates with adhesive attachment		35	1.143		187	39	5.10	231.10	

07 53 23 – Ethylene-Propylene-Diene-Monomer Roofing

07 53 23.20 Ethylene-Propylene-Diene-Monomer Roofing

0010	ETHYLENE-PROPYLENE-DIENE-MONOMER ROOFING (E.P.D.M.)									
3500	Ethylene-propylene-diene-monomer (EPDM), 45 mils, 0.28 P.S.F.									
3600	Loose-laid & ballasted with stone (10 P.S.F.)	G-5	51	.784	Sq.	67.50	26.50	3.51	97.51	
3700	Mechanically attached		35	1.143		63.50	39	5.10	107.60	
3800	Fully adhered with adhesive		26	1.538		99.50	52.50	6.90	158.90	
4500	60 mils, 0.40 P.S.F.									
4600	Loose-laid & ballasted with stone (10 P.S.F.)	G-5	51	.784	Sq.	78	26.50	3.51	108.01	
4700	Mechanically attached		35	1.143		73	39	5.10	117.10	
4800	Fully adhered with adhesive		26	1.538		109	52.50	6.90	168.40	
4810	45 mil, .28 PSF, membrane only					39.50			39.50	
4820	60 mil, .40 PSF, membrane only					48			48	
4850	Seam tape for membrane, 3" x 100' roll				Ea.	50			50	
4900	Batten strips, 10' sections					4.25			4.25	
4910	Cover tape for batten strips, 6" x 100' roll					113			113	
4930	Plate anchors				M	110			110	
4970	Adhesive for fully adhered systems, 60 S.F./gal.				Gal.	22.50			22.50	

07 53 29 – Polyisobutylene Roofing

07 53 29.10 Polyisobutylene Roofing

0010	POLYISOBUTYLENE ROOFING									
7500	Polyisobutylene (PIB), 100 mils, 0.57 P.S.F.									
7600	Loose-laid & ballasted with stone/gravel (10 P.S.F.)	G-5	51	.784	Sq.	181	26.50	3.51	211.01	
7700	Partially adhered with adhesive		35	1.143		227	39	5.10	271.10	
7800	Hot asphalt attachment		35	1.143		217	39	5.10	261.10	
7900	Fully adhered with contact cement		26	1.538		234	52.50	6.90	293.40	

54 Thermoplastic Membrane Roofing

54.19 - Polyvinyl-Chloride Roofing

19.10 Polyvinyl-Chloride Roofing (P.V.C.)	Daily Labor-Hours				2012 Bare Costs			Total Incl O&P	
	Crew	Output	Unit	Material	Labor	Equipment	Total		
POLYVINYL-CHLORIDE ROOFING (P.V.C.)									
Heat welded seams									
Reinforced, 48 mils, 0.33 P.S.F.									
Loose-laid & ballasted with stone/gravel (12 P.S.F.)	G-5	51	.784	Sq.	100	26.50	3.51	130.01	158
Mechanically attached		35	1.143		95.50	39	5.10	139.60	176
Fully adhered with adhesive		26	1.538		125	52.50	6.90	184.40	233
Reinforced, 60 mils, .40 P.S.F.									
Loose-laid & ballasted with stone/gravel (12 P.S.F.)	G-5	51	.784	Sq.	102	26.50	3.51	132.01	161
Mechanically attached		35	1.143		97.50	39	5.10	141.60	178
Fully adhered with adhesive		26	1.538		127	52.50	6.90	186.40	235

54.23 - Thermoplastic-Polyolefin Roofing

54.23.10 Thermoplastic Polyolefin Roofing (T.P.O.)

THERMOPLASTIC POLYOLEFIN ROOFING (T.P.O.)								
45 mils, loose laid & ballasted with stone (1/2 ton/sq.)	G-5	51	.784	Sq.	82	26.50	3.51	112.01
Fully adhered		25	1.600		73.50	54.50	7.15	135.15
Mechanically attached		34	1.176		73.50	40	5.25	118.75
Self adhered		35	1.143		88	39	5.10	132.10
60 mil membrane, heat welded seams, ballasted		50	.800		88.50	27	3.58	119.08
Fully adhered		25	1.600		79	54.50	7.15	140.65
Mechanically attached		34	1.176		83.50	40	5.25	128.75
Self adhered	▼	35	1.143	▼	107	39	5.10	151.10

56 Fluid-Applied Roofing

56.10 - Fluid-Applied Roofing Elastomers

56.10.10 Elastomeric Roofing

ELASTOMERIC ROOFING								
Acrylic rubber, fluid applied, 20 mils thick	G-5	2000	.020	S.F.	2.04	.68	.09	2.81
50 mils, reinforced		1200	.033		3.16	1.13	.15	4.44
For walking surface, add	▼	900	.044		.96	1.51	.20	2.67
Hypalon neoprene, fluid applied, 20 mil thick, not-reinforced	G-1	1135	.049		2.57	1.72	.40	4.69
Non-woven polyester, reinforced		960	.058		2.61	2.04	.47	5.12
5 coat neoprene deck, 60 mil thick, under 10,000 S.F.		325	.172		5.75	6	1.39	13.14
Over 10,000 S.F.		625	.090		5.35	3.13	.72	9.20
Vinyl plastic traffic deck, sprayed, 2 to 4 mils thick		625	.090		1.68	3.13	.72	5.53
Vinyl and neoprene membrane traffic deck	▼	1550	.036	▼	1.77	1.26	.29	3.32

57 Coated Foamed Roofing

57.13 - Sprayed Polyurethane Foam Roofing

57.13.10 Sprayed Polyurethane Foam Roofing (S.P.F.)

SPRAYED POLYURETHANE FOAM ROOFING (S.P.F.)								
Primer for metal substrate (when required)	G-2A	3000	.008	S.F.	.42	.27	.21	.90
Primer for non-metal substrate (when required)		3000	.008		.16	.27	.21	.64
Closed cell spray, polyurethane foam, 3 lb. per C.F. density, 1", R6.7		15000	.002		.57	.05	.04	.66
2", R13.4		13125	.002		1.14	.06	.05	1.25
3", R18.6		11485	.002		1.70	.07	.05	1.82
4", R24.8		10080	.002		2.27	.08	.06	2.41
Spray-on silicone coating	▼	2500	.010		.92	.32	.25	1.49
Warranty 5-20 year manufacturer's								.15
Warranty 20 year, no dollar limit								.20

07 58 Roll Roofing

07 58 10 – Asphalt Roll Roofing

07 58 10.10 Roll Roofing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl.
ROLL ROOFING							Labor	Equipment		
0010	Asphalt, mineral surface									
0200	1 ply #15 organic felt, 1 ply mineral surfaced									
0300	Selvoke roofing, lap 19", nailed & mopped	G-1	27	2.074	Sq.	62.50	72.50	16.75	151.75	
0400	3 plies glass fiber felt (type IV), 1 ply mineral surfaced									
0500	Selvoke roofing, lapped 19", mopped	G-1	25	2.240	Sq.	102	78.50	18.10	198.60	
0600	Coated glass fiber base sheet, 2 plies of glass fiber									
0700	Felt (type IV), 1 ply mineral surfaced selvoke									
0800	Roofing, lapped 19", mopped	G-1	25	2.240	Sq.	112	78.50	18.10	208.60	
0900	On nailable decks	"	24	2.333	"	102	81.50	18.85	202.35	
1000	3 plies glass fiber felt (type III), 1 ply mineral surfaced									
1100	Selvoke roofing, lapped 19", mopped	G-1	25	2.240	Sq.	102	78.50	18.10	198.60	

07 61 Sheet Metal Roofing

07 61 13 – Standing Seam Sheet Metal Roofing

07 61 13.10 Standing Seam Sheet Metal Roofing, Field Fab.

STANDING SEAM SHEET METAL ROOFING, FIELD FABRICATED										
0010	Copper standing seam roofing, over 10 squares, 16 oz., 125 lb. per sq.	1 Shee	1.30	6.154	Sq.	985	320		1,305	
0400	18 oz., 140 lb. per sq.		1.20	6.667		1,100	350		1,450	
0600	20 oz., 150 lb. per sq.		1.10	7.273		1,225	380		1,605	
0700										
1200	For abnormal conditions or small areas, add					25%	100%			
1300	For lead-coated copper, add					25%				

07 61 16 – Batten Seam Sheet Metal Roofing

07 61 16.10 Batten Seam Sheet Metal Roofing, Field Fabricated

BATTEN SEAM SHEET METAL ROOFING, FIELD FABRICATED										
0010	Copper batten seam roofing, over 10 sq., 16 oz., 130 lb. per sq.	1 Shee	1.10	7.273	Sq.	1,250	380		1,630	
0012	Lead batten seam roofing, 5 lb. per S.F.		1.20	6.667		620	350		970	
0020	Zinc/copper alloy batten seam roofing, .020 thick		1.20	6.667		1,100	350		1,450	
0100	Copper roofing, batten seam, over 10 sq., 18 oz., 145 lb. per sq.		1	8		1,400	415		1,815	
0200	20 oz., 160 lb. per sq.		1	8		1,550	415		1,965	
0300	Stainless steel batten seam roofing, type 304, 28 gauge		1.20	6.667		625	350		975	
0500	26 gauge		1.15	6.957		630	365		995	
0600	Zinc, copper alloy roofing, batten seam, .027" thick		1.15	6.957		1,550	365		1,915	
0800	.032" thick		1.10	7.273		1,875	380		2,255	
0900	.040" thick		1.05	7.619		2,100	395		2,495	
1000										

07 61 19 – Flat Seam Sheet Metal Roofing

07 61 19.10 Flat Seam Sheet Metal Roofing, Field Fabricated

FLAT SEAM SHEET METAL ROOFING, FIELD FABRICATED										
0010	Copper flat seam roofing, over 10 squares, 16 oz., 115 lb./sq.	1 Shee	1.20	6.667	Sq.	915	350		1,265	
0900	20 oz., 145 lb./sq.		1.10	7.273		1,150	380		1,530	
1000	Lead flat seam roofing, 5 lb. per S.F.		1.30	6.154		615	320		935	
1100										

65 Flexible Flashing

5 10 – Sheet Metal Flashing

10.10 Sheet Metal Flashing and Counter Flashing	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	2012 Bare Costs Equipment	Total	Total Incl O&P
SHEET METAL FLASHING AND COUNTER FLASHING									
Including up to 4 bends									
Aluminum, mill finish, .013" thick	1 Rofc	145	.055	S.F.	.73	2.06		2.79	4.26
.016" thick		145	.055		.84	2.06		2.90	4.38
.019" thick		145	.055		1.07	2.06		3.13	4.64
.032" thick		145	.055		1.25	2.06		3.31	4.84
.040" thick		145	.055		2.14	2.06		4.20	5.80
.050" thick		145	.055	▼	2.25	2.06		4.31	5.95
Mill finish 5" x 7" step flashing, .016" thick		1920	.004	Ea.	.18	.16		.34	.46
Mill finish 12" x 12" step flashing, .016" thick	▼	1600	.005	"	.62	.19		.81	.99
Painted finish, add				S.F.	.34			.34	.37
Mastic-coated 2 sides, .005" thick	1 Rofc	330	.024		1.67	.91		2.58	3.36
.016" thick		330	.024		1.84	.91		2.75	3.54
Copper, 16 oz., sheets, under 1000 lb.		115	.070		7.85	2.60		10.45	13
Over 4000 lb.		155	.052		7.85	1.93		9.78	11.90
20 oz. sheets, under 1000 lb.		110	.073		9.85	2.72		12.57	15.40
Over 4000 lb.		145	.055		9.35	2.06		11.41	13.75
24 oz. sheets, under 1000 lb.		105	.076		12.10	2.85		14.95	18.15
Over 4000 lb.		135	.059		11.50	2.22		13.72	16.35
32 oz. sheets, under 1000 lb.		100	.080		16.15	2.99		19.14	23
Over 4000 lb.		130	.062	▼	15.35	2.30		17.65	21
W shape for valleys, 16 oz., 24" wide		100	.080	L.F.	15.85	2.99		18.84	22.50
Lead, 2.5 lb. per S.F., up to 12" wide		135	.059	S.F.	5.40	2.22		7.62	9.65
Over 12" wide		135	.059		4.43	2.22		6.65	8.60
Stainless steel sheets, 32 ga, .010" thick		155	.052		4	1.93		5.93	7.65
28 ga, .015" thick		155	.052		5.65	1.93		7.58	9.45
26 ga, .018" thick		155	.052		7.25	1.93		9.18	11.25
24 ga, .025" thick	▼	155	.052	▼	8.90	1.93		10.83	13.05
For mechanically keyed flashing, add					40%				
Steel sheets, galvanized, 20 gauge	1 Rofc	130	.062	S.F.	1.43	2.30		3.73	5.45
30 gauge		160	.050		1.33	1.87		3.20	4.60
Terne coated stainless steel, .015" thick, 28 ga		155	.052		7.35	1.93		9.28	11.35
.018" thick, 26 ga		155	.052		8.30	1.93		10.23	12.35
Zinc and copper alloy (brass), .020" thick		155	.052		11.10	1.93		13.03	15.45
.027" thick		155	.052		15.60	1.93		17.53	20.50
.032" thick		155	.052		18.80	1.93		20.73	23.50
.040" thick	▼	155	.052	▼	21	1.93		22.93	26

65 12 – Fabric and Mastic Flashings

5 12.10 Fabric and Mastic Flashing and Counter Flashing

FABRIC AND MASTIC FLASHING AND COUNTER FLASHING									
Asphalt flashing cement, 5 gallon				Gal.	10.50			10.50	11.55
Fabric, asphalt-saturated cotton, specification grade	1 Rofc	35	.229	S.Y.	2.96	8.55		11.51	17.60
Utility grade		35	.229		1.42	8.55		9.97	15.90
Close-mesh fabric, saturated, 17 oz. per S.Y.		35	.229		2.15	8.55		10.70	16.70
Fiberglass, resin-coated		35	.229	▼	1.05	8.55		9.60	15.50
Shower pan, bituminous membrane, 7 oz.	▼	155	.052	S.F.	2	1.93		3.93	5.45

65 13 – Laminated Sheet Flashing

5 13.10 Laminated Sheet Flashing

LAMINATED SHEET FLASHING, Including up to 4 bends									
Fabric-backed 2 sides, .004" thick	1 Rofc	330	.024	S.F.	1.41	.91		2.32	3.07
.005" thick		330	.024		1.67	.91		2.58	3.36
Mastic-backed, self adhesive	▼	460	.017	▼	3.46	.65		4.11	4.90

07 65 Flexible Flashing

07 65 13 – Laminated Sheet Flashing

07 65 13.10 Laminated Sheet Flashing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl.
							Labor	Equipment		
0800	Mastic-coated 2 sides, .004" thick	1 Rofc	330	.024	S.F.	1.41	.91		2.32	
2800	Copper, paperbacked 1 side, 2 oz.		330	.024		1.67	.91		2.58	
2900	3 oz.		330	.024		1.97	.91		2.88	
3100	Paperbacked 2 sides, 2 oz.		330	.024		1.72	.91		2.63	
3150	3 oz.		330	.024		2.07	.91		2.98	
3200	5 oz.		330	.024		2.69	.91		3.60	
3250	7 oz.		330	.024		4.81	.91		5.72	
3400	Mastic-backed 2 sides, copper, 2 oz.		330	.024		1.65	.91		2.56	
3500	3 oz.		330	.024		2	.91		2.91	
3700	5 oz.		330	.024		3	.91		3.91	
3800	Fabric-backed 2 sides, copper, 2 oz.		330	.024		1.93	.91		2.84	
4000	3 oz.		330	.024		2.19	.91		3.10	
4100	5 oz.		330	.024		3.13	.91		4.04	
4300	Copper-clad stainless steel, .015" thick, under 500 lb.		115	.070		5.80	2.60		8.40	
4400	Over 2000 lb.		155	.052		5.55	1.93		7.48	
4600	.018" thick, under 500 lb.		100	.080		6.55	2.99		9.54	
4700	Over 2000 lb.		145	.055		6.20	2.06		8.26	
6100	Lead-coated copper, fabric-backed, 2 oz.		330	.024		2.64	.91		3.55	
6200	5 oz.		330	.024		3.04	.91		3.95	
6400	Mastic-backed 2 sides, 2 oz.		330	.024		2.06	.91		2.97	
6500	5 oz.		330	.024		2.55	.91		3.46	
6700	Paperbacked 1 side, 2 oz.		330	.024		1.78	.91		2.69	
6800	3 oz.		330	.024		2.09	.91		3	
7000	Paperbacked 2 sides, 2 oz.		330	.024		1.84	.91		2.75	
7100	5 oz.		330	.024		3	.91		3.91	
8550	3 ply copper and fabric, 3 oz.		155	.052		2.19	1.93		4.12	
8600	7 oz.		155	.052		3.25	1.93		5.18	
8700	Lead on copper and fabric, 5 oz.		155	.052		3.04	1.93		4.97	
8800	7 oz.		155	.052		5.25	1.93		7.18	
9300	Stainless steel, paperbacked 2 sides, .005" thick	▼	330	.024	▼	3.62	.91		4.53	

07 65 19 – Plastic Sheet Flashing

07 65 19.10 Plastic Sheet Flashing and Counter Flashing

0010 PLASTIC SHEET FLASHING AND COUNTER FLASHING										
7300	Polyvinyl chloride, block, .010" thick	1 Rofc	285	.028	S.F.	.21	1.05		1.26	
7400	.020" thick		285	.028		.30	1.05		1.35	
7600	.030" thick		285	.028		.39	1.05		1.44	
7700	.056" thick		285	.028		.94	1.05		1.99	
7900	Black or white for exposed roofs, .060" thick	▼	285	.028	▼	2	1.05		3.05	
8060	PVC tape, 5" x 45 mils, for joint covers, 100 L.F./roll				Eo.	136			136	
8850	Polyvinyl chloride, .030" thick	1 Rofc	160	.050	S.F.	.44	1.87		2.31	

07 65 23 – Rubber Sheet Flashing

07 65 23.10 Rubber Sheet Flashing and Counterflashing

0010 RUBBER SHEET FLASHING AND COUNTERFLASHING										
8100	Rubber, butyl, 1/32" thick	1 Rofc	285	.028	S.F.	1.75	1.05		2.80	
8200	1/16" thick		285	.028		2.38	1.05		3.43	
8300	Neoprene, cured, 1/16" thick		285	.028		1.92	1.05		2.97	
8400	1/8" thick	▼	285	.028	▼	4	1.05		5.05	

71 Roof Specialties

1 19 – Manufactured Gravel Stops and Fascias

19.10 Gravel Stop	Crew	Daily	Labor-	Unit	Material	2012 Bare Costs		Total	Total
		Output	Hours			Labor	Equipment		
GRAVEL STOP									
Aluminum, .050" thick, 4" face height, mill finish	1 Shee	145	.055	L.F.	6	2.88		8.88	11
Duranodic finish		145	.055		6.50	2.88		9.38	11.55
Painted		145	.055		6.85	2.88		9.73	11.90
6" face height		135	.059		6.45	3.09		9.54	11.80
Duranodic finish		135	.059		6.95	3.09		10.04	12.35
Painted		135	.059		8.10	3.09		11.19	13.60
8" face height		125	.064		7.30	3.34		10.64	13.10
Duranodic finish		125	.064		8	3.34		11.34	13.90
Painted		125	.064		8.15	3.34		11.49	14.05
12" face height, .080 thick, 2 piece		100	.080		10.15	4.17		14.32	17.55
Duranodic finish		100	.080		10.05	4.17		14.22	17.40
Painted		100	.080		11.90	4.17		16.07	19.45
Galv steel, 24 ga., 4" leg, plain, with continuous cleat, 4" face		145	.055		6	2.88		8.88	11
6" face height		145	.055		6	2.88		8.88	11
Polyvinyl chloride, 6" face height		135	.059		4.90	3.09		7.99	10.10
9" face height		125	.064		5.80	3.34		9.14	11.45
Stainless steel, 24 ga., 6" face height		135	.059		9.85	3.09		12.94	15.50
12" face height		100	.080		19.70	4.17		23.87	28
20 ga., 6" face height		135	.059		11.90	3.09		14.99	17.75
12" face height		100	.080		24	4.17		28.17	32.50

1 19.30 Fascia

FASCIA									
Aluminum, reverse board and batten, .032" thick, colored, no furring incl	1 Shee	145	.055	S.F.	6.25	2.88		9.13	11.30
Steel, galv and enameled, stock, no furring, long panels		145	.055		4.20	2.88		7.08	9
Short panels	▼	115	.070	▼	5.70	3.63		9.33	11.85

71 23 – Manufactured Gutters and Downspouts

1 23.10 Downspouts

DOWNSPOUTS									
Aluminum 2" x 3", .020" thick, embossed	1 Shee	190	.042	L.F.	.97	2.20		3.17	4.42
Enameled		190	.042		1.26	2.20		3.46	4.74
Enameled, .024" thick, 2" x 3"		180	.044		2.05	2.32		4.37	5.80
3" x 4"		140	.057		2.75	2.98		5.73	7.55
Round, corrugated aluminum, 3" diameter, .020" thick		190	.042		1.72	2.20		3.92	5.25
4" diameter, .025" thick		140	.057	▼	2.65	2.98		5.63	7.45
Wire strainer, round, 2" diameter		155	.052	Eq.	3.92	2.69		6.61	8.40
4" diameter		155	.052		7.20	2.69		9.89	12.05
Rectangular, perforated, 2" x 3"		145	.055		2.30	2.88		5.18	6.90
3" x 4"		145	.055	▼	3.32	2.88		6.20	8.05
Copper, round, 16 oz., stock, 2" diameter		190	.042	L.F.	8.10	2.20		10.30	12.25
3" diameter		190	.042		8.10	2.20		10.30	12.25
4" diameter		145	.055		10.85	2.88		13.73	16.30
5" diameter		130	.062		16.50	3.21		19.71	23
Rectangular, corrugated copper, stock, 2" x 3"		190	.042		8.45	2.20		10.65	12.60
3" x 4"		145	.055		11.10	2.88		13.98	16.60
Rectangular, plain copper, stock, 2" x 3"		190	.042		7.40	2.20		9.60	11.50
3" x 4"		145	.055	▼	9.90	2.88		12.78	15.30
Wire strainers, rectangular, 2" x 3"		145	.055	Eq.	7.90	2.88		10.78	13.05
3" x 4"		145	.055		7.90	2.88		10.78	13.05
Round, 2" diameter		145	.055		7.90	2.88		10.78	13.05
3" diameter		145	.055		7.90	2.88		10.78	13.05
4" diameter	▼	145	.055	▼	14.25	2.88		17.13	20

07 71 Roof Specialties

07 71 23 - Manufactured Gutters and Downspouts

07 71 23.10 Downspouts		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Ti Ind
							Labor	Equipment		
3400	5" diameter	1 Shee	115	.070	Eq.	19.75	3.63		23.38	
3600	Lead-coated copper, round, stock, 2" diameter		190	.042	L.F.	34	2.20		36.20	
3700	3" diameter		190	.042		30	2.20		32.20	
3900	4" diameter		145	.055		31	2.88		33.88	
4200	6" diameter, corrugated		105	.076		30	3.97		33.97	
4300	Rectangular, corrugated, stock, 2" x 3"		190	.042		12.70	2.20		14.90	
4500	Plain, stock, 2" x 3"		190	.042		16.35	2.20		18.55	
4600	3" x 4"		145	.055		18.20	2.88		21.08	
4800	Steel, galvanized, round, corrugated, 2" or 3" diameter, 28 gauge		190	.042		1.84	2.20		4.04	
4900	4" diameter, 28 gauge		145	.055		2.54	2.88		5.42	
5100	5" diameter, 28 gauge		130	.062		3.61	3.21		6.82	
5200	26 gauge		130	.062		4	3.21		7.21	
5400	6" diameter, 28 gauge		105	.076		4	3.97		7.97	
5500	26 gauge		105	.076		5.80	3.97		9.77	
5700	Rectangular, corrugated, 28 gauge, 2" x 3"		190	.042		1.28	2.20		3.48	
5800	3" x 4"		145	.055		1.82	2.88		4.70	
6000	Rectangular, plain, 28 gauge, galvanized, 2" x 3"		190	.042		1.28	2.20		3.48	
6100	3" x 4"		145	.055		2.44	2.88		5.32	
6300	Epoxy painted, 24 gauge, corrugated, 2" x 3"		190	.042		2	2.20		4.20	
6400	3" x 4"		145	.055		2.50	2.88		5.38	
6600	Wire strainers, rectangular, 2" x 3"		145	.055	Eq.	12	2.88		14.88	
6700	3" x 4"		145	.055		14	2.88		16.88	
6900	Round strainers, 2" or 3" diameter		145	.055		3.12	2.88		6	
7000	4" diameter		145	.055		5.80	2.88		8.68	
7800	Stainless steel tubing, schedule 5, 2" x 3" or 3" diameter		190	.042	L.F.	37.50	2.20		39.70	
7900	3" x 4" or 4" diameter		145	.055		48	2.88		50.88	
8100	4" x 5" or 5" diameter		135	.059		99	3.09		102.09	
8200	Vinyl, rectangular, 2" x 3"		210	.038		2.08	1.99		4.07	
8300	Round, 2-1/2"		220	.036		1.41	1.90		3.31	

07 71 23.20 Downspout Elbows

07 71 23.20 Downspout Elbows		Crew	Daily Output	Labor-Hours	Unit	Material	Labor	Equipment	Total	Ti Ind
0010	DOWNSPOUT ELBOWS									
0020	Aluminum, 2" x 3", embossed	1 Shee	100	.080	Eq.	1.02	4.17		5.19	
0100	Enameled		100	.080		1.02	4.17		5.19	
0200	3" x 4", .025" thick, embossed		100	.080		3.50	4.17		7.67	
0300	Enameled		100	.080		2.02	4.17		6.19	
0400	Round corrugated, 3", embossed, .020" thick		100	.080		2.74	4.17		6.91	
0500	4", .025" thick		100	.080		5.80	4.17		9.97	
0600	Copper, 16 oz. round, 2" diameter		100	.080		8.50	4.17		12.67	
0700	3" diameter		100	.080		11.40	4.17		15.57	
0800	4" diameter		100	.080		12.90	4.17		17.07	
1000	2" x 3" corrugated		100	.080		8.50	4.17		12.67	
1100	3" x 4" corrugated		100	.080		14	4.17		18.17	
1300	Vinyl, 2-1/2" diameter, 45° or 75°		100	.080		3.98	4.17		8.15	
1400	Tee Y junction		75	.107		12.90	5.55		18.45	

07 71 23.30 Gutters

07 71 23.30 Gutters		Crew	Daily Output	Labor-Hours	Unit	Material	Labor	Equipment	Total	Ti Ind
0010	GUTTERS									
0012	Aluminum, stock units, 5" K type, .027" thick, plain	1 Shee	120	.067	L.F.	2.67	3.48		6.15	
0100	Enameled		120	.067		2.58	3.48		6.06	
0300	5" K type type, .032" thick, plain		120	.067		2.89	3.48		6.37	
0400	Enameled		120	.067		3.26	3.48		6.74	
0700	Copper, half round, 16 oz., stock units, 4" wide		120	.067		9.90	3.48		13.38	
0900	5" wide		120	.067		9	3.48		12.48	

71 Roof Specialties

71 23 – Manufactured Gutters and Downspouts

71 23.30 Gutters	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Ind O&P
6" wide	1 Shee	115	.070	L.F.	14.60	3.63		18.23	21.50
K type, 16 oz., stock, 4" wide		120	.067		13.20	3.48		16.68	19.80
5" wide		120	.067		11.70	3.48		15.18	18.15
Lead coated copper, half round, stock, 4" wide		120	.067		10.40	3.48		13.88	16.75
6" wide		115	.070		22	3.63		25.63	30
K type, stock, 4" wide		120	.067		11.50	3.48		14.98	17.95
5" wide		120	.067		14.45	3.48		17.93	21
Stainless steel, half round or box, stock, 4" wide		120	.067		5.90	3.48		9.38	11.75
5" wide		120	.067		6.35	3.48		9.83	12.25
Steel, galv, half round or box, 28 ga, 5" wide, plain		120	.067		3.89	3.48		7.37	9.60
Enameled		120	.067		2.02	3.48		5.50	7.50
26 ga, stock, 5" wide		120	.067		2.18	3.48		5.66	7.70
6" wide		120	.067		2.88	3.48		6.36	8.45
Vinyl, O.G., 4" wide	1 Corp	110	.073		1.08	3.21		4.29	6.10
5" wide		110	.073		1.38	3.21		4.59	6.45
4" half round, stock units		110	.073		1.08	3.21		4.29	6.10
Joint connectors				Eo.	2.88			2.88	3.17
Wood, clear treated cedar, fir or hemlock, 3" x 4"	1 Corp	100	.080	L.F.	10	3.53		13.53	16.45
4" x 5"	"	100	.080	"	13.50	3.53		17.03	20.50

71 23.35 Gutter Guard

GUTTER GUARD									
6" wide strip, aluminum mesh	1 Corp	500	.016	L.F.	2.85	.71		3.56	4.23
Vinyl mesh	"	500	.016	"	2.58	.71		3.29	3.93

71 26 – Reglets

71 26.10 Reglets and Accessories

REGLETS AND ACCESSORIES									
Aluminum, .025" thick, in concrete parapet	1 Corp	225	.036	L.F.	1.77	1.57		3.34	4.36
Copper, 10 oz.		225	.036		2.87	1.57		4.44	5.55
16 oz.		225	.036		5.60	1.57		7.17	8.55
Galvanized steel, 24 gauge		225	.036		1.03	1.57		2.60	3.54
Stainless steel, .020" thick		225	.036		3.45	1.57		5.02	6.20
Zinc and copper alloy, 20 oz.		225	.036		2.87	1.57		4.44	5.55
Counter flashing for above, 12" wide, .032" aluminum	1 Shee	150	.053		1.78	2.78		4.56	6.20
Copper, 10 oz.		150	.053		5.40	2.78		8.18	10.20
16 oz.		150	.053		5.25	2.78		8.03	10.05
Galvanized steel, .020" thick		150	.053		1.28	2.78		4.06	5.65
Stainless steel, .020" thick		150	.053		5.15	2.78		7.93	9.90
Zinc and copper alloy, 20 oz.		150	.053		5.25	2.78		8.03	10

71 29 – Manufactured Roof Expansion Joints

71 29.10 Expansion Joints

EXPANSION JOINTS									
Butyl or neoprene center with foam insulation, metal flanges									
Aluminum, .032" thick for openings to 2-1/2"	1 Rofc	165	.048	L.F.	16	1.81		17.81	20.50
For joint openings to 3-1/2"		165	.048		16	1.81		17.81	20.50
For joint openings to 5"		165	.048		16.40	1.81		18.21	21
For joint openings to 8"		165	.048		18.20	1.81		20.01	23
Copper, 16 oz. for openings to 2-1/2"		165	.048		24.50	1.81		26.31	30
For joint openings to 3-1/2"		165	.048		24.50	1.81		26.31	30
For joint openings to 5"		165	.048		25.50	1.81		27.31	31
For joint openings to 8"		165	.048		27	1.81		28.81	33
Galvanized steel, 26 ga. for openings to 2-1/2"		165	.048		13	1.81		14.81	17.35

07 71 Roof Specialties

07 71 29 – Manufactured Roof Expansion Joints

07 71 29.10 Expansion Joints		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl.
							Labor	Equipment		
1200	For joint openings to 3-1/2"	1 Rofc	165	.048	L.F.	13	1.81		14.81	
1210	For joint openings to 5"		165	.048		13.90	1.81		15.71	
1220	For joint openings to 8"		165	.048		17.30	1.81		19.11	
1300	Lead-coated copper, 16 oz. for openings to 2-1/2"		165	.048		33.50	1.81		35.31	
1500	For joint openings to 3-1/2"		165	.048		40	1.81		41.81	
1600	Stainless steel, .018", for openings to 2-1/2"		165	.048		17.90	1.81		19.71	
1800	For joint openings to 3-1/2"		165	.048		17.90	1.81		19.71	
1810	For joint openings to 5"		165	.048		18.60	1.81		20.41	
1820	For joint openings to 8"		165	.048		20.50	1.81		22.31	
1900	Neoprene, double-seal type with thick center, 4-1/2" wide		125	.064		14	2.39		16.39	
1950	Polyethylene bellows, with galv steel flat flanges		100	.080		5.40	2.99		8.39	
1960	With galvanized angle flanges		100	.080		6	2.99		8.99	
2000	Roof joint with extruded aluminum cover, 2"	1 Shee	115	.070		37.50	3.63		41.13	
2100	Roof joint, plastic curbs, foam center, standard	1 Rofc	100	.080		13.70	2.99		16.69	
2200	Large		100	.080		18.25	2.99		21.24	
2300	Transitions, regular, minimum		10	.800	Eq.	120	30		150	
2350	Maximum		4	2		150	75		225	
2400	Large, minimum		9	.889		173	33		206	
2450	Maximum		3	2.667		182	99.50		281.50	
2500	Roof to wall joint with extruded aluminum cover	1 Shee	115	.070	L.F.	31.50	3.63		35.13	
2700	Wall joint, closed cell foam on PVC cover, 9" wide	1 Rofc	125	.064		4.90	2.39		7.29	
2800	12" wide	"	115	.070		5.50	2.60		8.10	

07 71 43 – Drip Edge

07 71 43.10 Drip Edge, Rake Edge, Ice Belts

0010	DRIP EDGE, RAKE EDGE, ICE BELTS									
0020	Aluminum, .016" thick, 5" wide, mill finish	1 Corp	400	.020	L.F.	.38	.88		1.26	
0100	White finish		400	.020		.38	.88		1.26	
0200	8" wide, mill finish		400	.020		.46	.88		1.34	
0300	Ice belt, 28" wide, mill finish		100	.080		3.85	3.53		7.38	
0310	Vented, mill finish		400	.020		2.76	.88		3.64	
0320	Pointed finish		400	.020		2.86	.88		3.74	
0400	Galvanized, 5" wide		400	.020		.48	.88		1.36	
0500	8" wide, mill finish		400	.020		.69	.88		1.57	
0510	Rake edge, aluminum, 1-1/2" x 1-1/2"		400	.020		.28	.88		1.16	
0520	3-1/2" x 1-1/2"		400	.020		.38	.88		1.26	

07 72 Roof Accessories

07 72 23 – Relief Vents

07 72 23.10 Roof Vents

0010	ROOF VENTS									
0020	Mushroom shape, for built-up roofs, aluminum	1 Rofc	30	.267	Eq.	88.50	9.95		98.45	
0100	PVC, 6" high	"	30	.267	"	28.50	9.95		38.45	

07 72 26 – Ridge Vents

07 72 26.10 Ridge Vents and Accessories

0010	RIDGE VENTS AND ACCESSORIES									
0100	Aluminum strips, mill finish	1 Rofc	160	.050	L.F.	2.62	1.87		4.49	
0150	Pointed finish		160	.050	"	3.74	1.87		5.61	
0200	Connectors		48	.167	Eq.	3.68	6.25		9.93	
0300	End caps		48	.167	"	1.37	6.25		7.62	
0400	Galvanized strips		160	.050	L.F.	2.19	1.87		4.06	

72 Roof Accessories

72 26 – Ridge Vents

72 26.10 Ridge Vents and Accessories	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Molded polyethylene, shingles not included	1 Rofc	160	.050	L.F.	2.99	1.87		4.86	6.45
End plugs	↓	48	.167	Ea.	1.37	6.25		7.62	11.95
Flexible roll, shingles not included	↓	160	.050	L.F.	2.15	1.87		4.02	5.50
Ridge vent strip, mill finish	1 Shee	155	.052	"	2.95	2.69		5.64	7.35

72 33 – Roof Hatches

72 33.10 Roof Hatch Options

ROOF HATCH OPTIONS									
2'-6" x 3', aluminum curb and cover	G-3	10	3.200	Ea.	1,050	140		1,190	1,400
Galvanized steel curb and aluminum cover		10	3.200		640	140		780	920
Galvanized steel curb and cover		10	3.200		590	140		730	865
2'-6" x 4'-6", aluminum curb and cover		9	3.556		920	155		1,075	1,225
Galvanized steel curb and aluminum cover		9	3.556		650	155		805	950
Galvanized steel curb and cover		9	3.556		890	155		1,045	1,225
4' x 4' aluminum curb and cover		8	4		1,800	175		1,975	2,250
Galvanized steel curb and aluminum cover		8	4		1,800	175		1,975	2,250
Galvanized steel curb and cover		8	4		1,625	175		1,800	2,050
2'-6" x 8'-0", aluminum curb and cover		6.60	4.848		1,800	212		2,012	2,300
Galvanized steel curb and aluminum cover		6.60	4.848		1,800	212		2,012	2,300
Galvanized steel curb and cover	↓	6.60	4.848		1,300	212		1,512	1,750
For plexiglass panels, 2'-6" x 3'-0", add to above				↓	440			440	485

72 36 – Smoke Vents

72 36.10 Smoke Hatches

SMOKE HATCHES									
For 3'-0" long, add to roof hatches from Section 07 72 33.10				Ea.	25%	5%			
For 4'-0" long, add to roof hatches from Section 07 72 33.10					20%	5%			
For 8'-0" long, add to roof hatches from Section 07 72 33.10				↓	10%	5%			

72 36.20 Smoke Vent Options

SMOKE VENT OPTIONS									
4' x 4' aluminum cover and frame	G-3	13	2.462	Ea.	2,050	107		2,157	2,425
Galvanized steel cover and frame		13	2.462		1,800	107		1,907	2,150
4' x 8' aluminum cover and frame		8	4		2,800	175		2,975	3,350
Galvanized steel cover and frame	↓	8	4	↓	2,375	175		2,550	2,900

72 53 – Snow Guards

72 53.10 Snow Guard Options

SNOW GUARD OPTIONS									
Slate & asphalt shingle roofs, fastened with nails	1 Rofc	160	.050	Ea.	9.40	1.87		11.27	13.50
Standing seam metal roofs, fastened with set screws		48	.167		15.60	6.25		21.85	27.50
Surface mount for metal roofs, fastened with solder		48	.167	↓	6.05	6.25		12.30	17.10
Double rail pipe type, including pipe	↓	130	.062	L.F.	22.50	2.30		24.80	29

72 73 – Pitch Pockets

72 73.10 Pitch Pockets, Variable Sizes

PITCH POCKETS, VARIABLE SIZES									
Adjustable, 4" to 7", welded corners, 4" deep	1 Rofc	48	.167	Ea.	15	6.25		21.25	27
Side extenders, 6"	"	240	.033	"	2	1.25		3.25	4.29

72 80 – Vents

72 80.30 Vent Options

VENT OPTIONS									
Plastic, for insulated decks, 1 per M.S.F., minimum	1 Rofc	40	.200	Ea.	19	7.50		26.50	33.50
Maximum	↓	20	.400		40	14.95		54.95	69
Aluminum	↓	30	.267	↓	19	9.95		28.95	37.50

07 72 Roof Accessories

07 72 80 - Vents

07 72 80.30 Vent Options		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Ind.
							Labor	Equipment		
0800	Polystyrene baffles, 12" wide for 16" O.C. rafter spacing	1 Carp	90	.089	Ea.	.40	3.92		4.32	
0900	For 24" O.C. rafter spacing	"	110	.073	↓	.75	3.21		3.96	

07 81 Applied Fireproofing

07 81 16 - Cementitious Fireproofing

07 81 16.10 Sprayed Cementitious Fireproofing

0010 SPRAYED CEMENTITIOUS FIREPROOFING										
0050	Not including canvas protection, normal density									
0100	Per 1" thick, on flat plate steel	G-2	3000	.008	S.F.	.53	.30	.04	.87	
0200	Flat decking		2400	.010		.53	.37	.05	.95	
0400	Beams		1500	.016		.53	.59	.09	1.21	
0500	Corrugated or fluted decks		1250	.019		.79	.71	.10	1.60	
0700	Columns, 1-1/8" thick		1100	.022		.59	.81	.12	1.52	
0800	2-3/16" thick		700	.034		1.20	1.27	.18	2.65	
0900	For canvas protection, add	↓	5000	.005	↓	.07	.18	.03	.28	
1500	Intumescent epoxy fireproofing on wire mesh, 3/16" thick									
1550	1 hour rating, exterior use	G-2	136	.176	S.F.	7.30	6.55	.94	14.79	
1600	Magnesium oxychloride, 35# to 40# density, 1/4" thick		3000	.008		1.53	.30	.04	1.87	
1650	1/2" thick		2000	.012		3.09	.44	.06	3.59	
1700	60# to 70# density, 1/4" thick		3000	.008		2.04	.30	.04	2.38	
1750	1/2" thick		2000	.012		4.10	.44	.06	4.60	
2000	Vermiculite cement, troweled or sprayed, 1/4" thick		3000	.008		1.39	.30	.04	1.73	
2050	1/2" thick	↓	2000	.012	↓	2.77	.44	.06	3.27	

07 84 Firestopping

07 84 13 - Penetration Firestopping

07 84 13.10 Firestopping

0010 FIRESTOPPING		R078413-30								
0100	Metallic piping, non insulated									
0110	Through walls, 2" diameter	1 Carp	16	.500	Ea.	14.65	22		36.65	5
0120	4" diameter		14	.571		22.50	25		47.50	4
0130	6" diameter		12	.667		30	29.50		59.50	7
0140	12" diameter		10	.800		53	35.50		88.50	11
0150	Through floors, 2" diameter		32	.250		8.85	11.05		19.90	2
0160	4" diameter		28	.286		12.75	12.60		25.35	3
0170	6" diameter		24	.333		16.75	14.70		31.45	4
0180	12" diameter	↓	20	.400	↓	28.50	17.65		46.15	5
0190	Metallic piping, insulated									
0200	Through walls, 2" diameter	1 Carp	16	.500	Ea.	20.50	22		42.50	5
0210	4" diameter		14	.571		28.50	25		53.50	7
0220	6" diameter		12	.667		36	29.50		65.50	8
0230	12" diameter		10	.800		59	35.50		94.50	12
0240	Through floors, 2" diameter		32	.250		15	11.05		26.05	3
0250	4" diameter		28	.286		18.85	12.60		31.45	4
0260	6" diameter		24	.333		23	14.70		37.70	4
0270	12" diameter	↓	20	.400	↓	28.50	17.65		46.15	5
0280	Non metallic piping, non insulated									
0290	Through walls, 2" diameter	1 Carp	12	.667	Ea.	60	29.50		89.50	11
0300	4" diameter	↓	10	.800	↓	75.50	35.50		111	13

84 Firestopping

14 13 – Penetration Firestopping

13.10 Firestopping	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
6" diameter	1 Carp	8	1	Ea.	105	44		149	184
Through floors, 2" diameter		16	.500		47	22		69	86
4" diameter		6	1.333		58.50	59		117.50	155
6" diameter		6	1.333		70.50	59		129.50	168
Ductwork, insulated & non insulated, round									
Through walls, 6" diameter	1 Carp	12	.667	Ea.	30.50	29.50		60	79
12" diameter		10	.800		61	35.50		96.50	122
18" diameter		8	1		99	44		143	177
Through floors, 6" diameter		16	.500		16.75	22		38.75	52.50
12" diameter		14	.571		30.50	25		55.50	73
18" diameter		12	.667		53	29.50		82.50	104
Ductwork, insulated & non insulated, rectangular									
With stiffener/closure angle, through walls, 6" x 12"	1 Carp	8	1	Ea.	25.50	44		69.50	96
12" x 24"		6	1.333		33.50	59		92.50	128
24" x 48"		4	2		96.50	88		184.50	242
With stiffener/closure angle, through floors, 6" x 12"		10	.800		13.75	35.50		49.25	69.50
12" x 24"		8	1		25	44		69	95.50
24" x 48"		6	1.333		48.50	59		107.50	144
Multi trade openings									
Through walls, 6" x 12"	1 Carp	2	4	Ea.	53	176		229	330
12" x 24"	"	1	8		215	355		570	780
24" x 48"	2 Carp	1	16		860	705		1,565	2,025
48" x 96"	"	.75	21.333		3,450	940		4,390	5,250
Through floors, 6" x 12"	1 Carp	2	4		53	176		229	330
12" x 24"	"	1	8		215	355		570	780
24" x 48"	2 Carp	.75	21.333		860	940		1,800	2,400
48" x 96"	"	.50	32		3,450	1,400		4,850	5,975
Structural penetrations, through walls									
Steel beams, W8 x 10	1 Carp	8	1	Ea.	33.50	44		77.50	105
W12 x 14		6	1.333		53	59		112	149
W21 x 44		5	1.600		107	70.50		177.50	227
W36 x 135		3	2.667		260	118		378	465
Bar joists, 18" deep		6	1.333		49	59		108	145
24" deep		6	1.333		61	59		120	158
36" deep		5	1.600		91.50	70.50		162	210
48" deep		4	2		107	88		195	254
Construction joints, floor slab at exterior wall									
Precast, brick, block or drywall exterior									
2" wide joint	1 Carp	125	.064	L.F.	7.60	2.82		10.42	12.75
4" wide joint	"	75	.107	"	15.25	4.70		19.95	24
Metal panel, glass or curtain wall exterior									
2" wide joint	1 Carp	40	.200	L.F.	18.05	8.80		26.85	33.50
4" wide joint	"	25	.320	"	25	14.10		39.10	49
Floor slab to drywall partition									
Flat joint	1 Carp	100	.080	L.F.	7.50	3.53		11.03	13.70
Fluted joint		50	.160		15.25	7.05		22.30	27.50
Etched fluted joint		75	.107		9.90	4.70		14.60	18.15
Floor slab to concrete/masonry partition									
Flat joint	1 Carp	75	.107	L.F.	16.75	4.70		21.45	25.50
Fluted joint	"	50	.160	"	19.85	7.05		26.90	33
Concrete/CMU wall joints									
1" wide	1 Carp	100	.080	L.F.	9.15	3.53		12.68	15.50
2" wide		75	.107		16.75	4.70		21.45	25.50

07 84 Firestopping

07 84 13 – Penetration Firestopping

07 84 13.10 Firestopping		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	% Incl
							Labor	Equipment		
0860	4" wide	1 Corp	50	.160	L.F.	32	7.05		39.05	
0870	Concrete/CMU floor joints									
0880	1" wide	1 Corp	200	.040	L.F.	4.59	1.76		6.35	
0890	2" wide		150	.053		8.40	2.35		10.75	
0900	4" wide	▼	100	.080	▼	16	3.53		19.53	

07 91 Preformed Joint Seals

07 91 13 – Compression Seals

07 91 13.10 Compression Seals

0010 COMPRESSION SEALS										
4900	O-ring type cord, 1/4"	1 Bric	472	.017	L.F.	.48	.75		1.23	
4910	1/2"		440	.018		1.79	.80		2.59	
4920	3/4"		424	.019		3.62	.83		4.45	
4930	1"		408	.020		6.95	.86		7.81	
4940	1-1/4"		384	.021		13.75	.92		14.67	
4950	1-1/2"		368	.022		17.40	.96		18.36	
4960	1-3/4"		352	.023		36.50	1		37.50	
4970	2"	▼	344	.023	▼	64.50	1.03		65.53	

07 91 16 – Joint Gaskets

07 91 16.10 Joint Gaskets

0010 JOINT GASKETS										
4400	Joint gaskets, neoprene, closed cell w/adh, 1/8" x 3/8"	1 Bric	240	.033	L.F.	.27	1.47		1.74	
4500	1/4" x 3/4"		215	.037		.59	1.64		2.23	
4700	1/2" x 1"		200	.040		1.31	1.76		3.07	
4800	3/4" x 1-1/2"	▼	165	.048	▼	1.45	2.14		3.59	

07 91 23 – Backer Rods

07 91 23.10 Backer Rods

0010 BACKER RODS										
0030	Backer rod, polyethylene, 1/4" diameter	1 Bric	4.60	1.739	C.L.F.	2.75	76.50		79.25	
0050	1/2" diameter		4.60	1.739		5.65	76.50		82.15	
0070	3/4" diameter		4.60	1.739		7.30	76.50		83.80	
0090	1" diameter	▼	4.60	1.739	▼	13.65	76.50		90.15	

07 91 26 – Joint Fillers

07 91 26.10 Joint Fillers

0010 JOINT FILLERS										
4360	Butyl rubber filler, 1/4" x 1/4"	1 Bric	290	.028	L.F.	.14	1.22		1.36	
4365	1/2" x 1/2"		250	.032		.57	1.41		1.98	
4370	1/2" x 3/4"		210	.038		.86	1.68		2.54	
4375	3/4" x 3/4"		230	.035		1.28	1.53		2.81	
4380	1" x 1"	▼	180	.044	▼	1.71	1.96		3.67	
4390	For coloring, add					12%				
4980	Polyethylene joint backing, 1/4" x 2"	1 Bric	2.08	3.846	C.L.F.	12	170		182	
4990	1/4" x 6"		1.28	6.250	"	28	276		304	
5600	Silicone, room temp vulcanizing foam seal, 1/4" x 1/2"		1312	.006	L.F.	.31	.27		.58	
5610	1/2" x 1/2"		656	.012		.63	.54		1.17	
5620	1/2" x 3/4"		442	.018		.94	.80		1.74	
5630	3/4" x 3/4"		328	.024		1.41	1.08		2.49	
5640	1/8" x 1"		1312	.006		.31	.27		.58	
5650	1/8" x 3"	▼	442	.018	▼	.94	.80		1.74	

91 Preformed Joint Seals

91 26 – Joint Fillers

91 26.10 Joint Fillers	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
1/4" x 3"	1 Bric	295	.027	L.F.	1.88	1.20		3.08	3.88
1/4" x 6"		148	.054		3.77	2.38		6.15	7.75
1/2" x 6"		82	.098		7.55	4.30		11.85	14.80
1/2" x 9"		52.50	.152		11.30	6.70		18	22.50
1/2" x 12"	▼	33	.242	▼	15.05	10.70		25.75	33

92 Joint Sealants

92 13 – Elastomeric Joint Sealants

92 13.20 Caulking and Sealant Options

CAULKING AND SEALANT OPTIONS									
Latex acrylic based, bulk				Gal.	29.50			29.50	32.50
Bulk in place 1/4" x 1/4" bead	1 Bric	300	.027	L.F.	.09	1.18		1.27	1.88
1/4" x 3/8"		294	.027		.16	1.20		1.36	1.98
1/4" x 1/2"		288	.028		.21	1.23		1.44	2.08
3/8" x 3/8"		284	.028		.23	1.24		1.47	2.13
3/8" x 1/2"		280	.029		.31	1.26		1.57	2.24
3/8" x 5/8"		276	.029		.39	1.28		1.67	2.36
3/8" x 3/4"		272	.029		.46	1.30		1.76	2.47
1/2" x 1/2"		275	.029		.41	1.28		1.69	2.40
1/2" x 5/8"		269	.030		.52	1.31		1.83	2.55
1/2" x 3/4"		263	.030		.62	1.34		1.96	2.71
1/2" x 7/8"		256	.031		.72	1.38		2.10	2.88
1/2" x 1"		250	.032		.83	1.41		2.24	3.04
3/4" x 3/4"		244	.033		.93	1.45		2.38	3.21
3/4" x 1"		225	.036		1.24	1.57		2.81	3.74
1" x 1"	▼	200	.040	▼	1.66	1.76		3.42	4.48
Cartridges				Gal.	25.50			25.50	28
11 fl. oz. cartridge				Ea.	2.20			2.20	2.42
1/4" x 1/2"	1 Bric	288	.028	L.F.	.18	1.23		1.41	2.05
1/2" x 1/2"		275	.029		.36	1.28		1.64	2.34
3/4" x 3/4"		244	.033		.81	1.45		2.26	3.07
3/4" x 1"		225	.036		1.08	1.57		2.65	3.56
1" x 1"	▼	200	.040	▼	1.35	1.76		3.11	4.14
Butyl based, bulk				Gal.	28.50			28.50	31.50
Cartridges				"	32			32	35
1/4" x 1/2", 154 L.F./gal.	1 Bric	288	.028	L.F.	.19	1.23		1.42	2.05
1/2" x 1/2", 77 L.F./gal.	"	275	.029	"	.37	1.28		1.65	2.35
Polsulfide compounds, 1 component, bulk				Gal.	56			56	61.50
1 or 2 component, in place, 1/4" x 1/4", 308 L.F./gal.	1 Bric	300	.027	L.F.	.18	1.18		1.36	1.98
1/2" x 1/4", 154 L.F./gal.		288	.028		.36	1.23		1.59	2.25
3/4" x 3/8", 68 L.F./gal.		272	.029		.82	1.30		2.12	2.87
1" x 1/2", 38 L.F./gal.	▼	250	.032	▼	1.47	1.41		2.88	3.75
Polyurethane, 1 or 2 component				Gal.	51			51	56
Bulk, in place, 1/4" x 1/4"	1 Bric	300	.027	L.F.	.17	1.18		1.35	1.96
1/2" x 1/4"		288	.028		.33	1.23		1.56	2.21
3/4" x 3/8"		272	.029		.75	1.30		2.05	2.79
1" x 1/2"	▼	250	.032	▼	1.33	1.41		2.74	3.59
Silicone rubber, bulk				Gal.	42			42	46
Cartridges				"	41			41	45

07 92 Joint Sealants

07 92 16 – Rigid Joint Sealants

07 92 16.10 Rigid Joint Sealants

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. O&M
							Labor	Equipment		
0010	RIGID JOINT SEALANTS									
5800	Tapes, sealant, P.V.C. foam adhesive, 1/16" x 1/4"				C.L.F.	6			6	
5900	1/16" x 1/2"					8			8	
5950	1/16" x 1"					15			15	
6000	1/8" x 1/2"					9			9	

07 92 19 – Acoustical Joint Sealants

07 92 19.10 Acoustical Sealant

0010	ACOUSTICAL SEALANT									
0020	Acoustical sealant, elastomeric, cartridges				Eq.	6.25			6.25	
0025	In place, 1/4" x 1/4"	1 Bric	300	.027	L.F.	.26	1.18		1.44	
0030	1/4" x 1/2"		288	.028		.51	1.23		1.74	
0035	1/2" x 1/2"		275	.029		1.02	1.28		2.30	
0040	1/2" x 3/4"		263	.030		1.53	1.34		2.87	
0045	3/4" x 3/4"		244	.033		2.30	1.45		3.75	
0050	1" x 1"		200	.040		4.09	1.76		5.85	

07 95 Expansion Control

07 95 13 – Expansion Joint Cover Assemblies

07 95 13.50 Expansion Joint Assemblies

0010	EXPANSION JOINT ASSEMBLIES									
0200	Floor cover assemblies, 1" space, aluminum	1 Sswk	38	.211	L.F.	19.60	10.40		30	
0300	Bronze		38	.211		46.50	10.40		56.90	
0500	2" space, aluminum		38	.211		24	10.40		34.40	
0600	Bronze		38	.211		50	10.40		60.40	
0800	Wall and ceiling assemblies, 1" space, aluminum		38	.211		11.70	10.40		22.10	
0900	Bronze		38	.211		43.50	10.40		53.90	
1100	2" space, aluminum		38	.211		19.90	10.40		30.30	
1200	Bronze		38	.211		53.50	10.40		63.90	
1400	Floor to wall assemblies, 1" space, aluminum		38	.211		17.85	10.40		28.25	
1500	Bronze or stainless		38	.211		52.50	10.40		62.90	
1700	Gym floor angle covers, aluminum, 3" x 3" angle		46	.174		15.45	8.60		24.05	
1800	3" x 4" angle		46	.174		21.50	8.60		30.10	
2000	Roof closures, aluminum, flat roof, low profile, 1" space		57	.140		35.50	6.95		42.45	
2100	High profile		57	.140		51.50	6.95		58.45	
2300	Roof to wall, low profile, 1" space		57	.140		19.75	6.95		26.70	
2400	High profile		57	.140		25.50	6.95		32.45	

Estimating Tips

08 00 Doors and Frames

Exterior doors should be priced for their energy conservation (insulation and glazing). Most metal doors and frames look alike, but there may be significant differences among them. When estimating these items, be sure to choose the item that most closely compares to the specification or door schedule requirements regarding:

- type of metal
- metal gauge
- door core material
- fire rating
- finish

Wood and plastic doors vary considerably in price. The primary determinant is the veneer material. Lauan, birch, and oak are the most common veneers. Other variables include the following:

- hollow or solid core
- fire rating
- flush or raised panel
- finish

08 00 Specialty Doors and Frames

There are many varieties of specialty doors, and they are usually priced per each. Add frames, hardware, or operators required for a complete installation.

08 40 00 Entrances, Storefronts, and Curtain Walls

- Glazed curtain walls consist of the metal tube framing and the glazing material. The cost data in this subdivision is presented for the metal tube framing alone or the composite wall. If your estimate requires a detailed takeoff of the framing, be sure to add the glazing cost.

08 50 00 Windows

- Most metal windows are delivered preglazed. However, some metal windows are priced without glass. Refer to 08 80 00 Glazing for glass pricing. The grade C indicates commercial grade windows, usually ASTM C-35.
- All wood windows and vinyl are priced preglazed. The glazing is insulating glass. Some wood windows may have single pane float glass. Add the cost of screens and grills if required, and not already included.

08 70 00 Hardware

- Hardware costs add considerably to the cost of a door. The most efficient method to determine the hardware requirements for a project is to review the door schedule.

- Door hinges are priced by the pair, with most doors requiring 1-1/2 pairs per door. The hinge prices do not include installation labor because it is included in door installation. Hinges are classified according to the frequency of use.

08 80 00 Glazing

- Different openings require different types of glass. The most common types are:
 - float
 - tempered
 - insulating
 - impact-resistant
 - ballistic-resistant
- Most exterior windows are glazed with insulating glass. Entrance doors and window walls, where the glass is less than 18" from the floor, are generally glazed with tempered glass. Interior windows and some residential windows are glazed with float glass.
- Coastal communities require the use of impact-resistant glass.
- The insulation or 'u' value is a strong consideration, along with solar heat gain, to determine total energy efficiency.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

08 05 Common Work Results for Openings

08 05 05 – Selective Windows and Doors Demolition

08 05 05.10 Selective Demolition Doors

			Daily	Labor-			2012 Bare Costs			
			Crew	Output	Hours	Unit	Material	Labor	Equipment	Total
0010	SELECTIVE DEMOLITION DOORS	R024119-10								
0200	Doors, exterior, 1-3/4" thick, single, 3' x 7' high		1 Clob	16	.500	Eo.		17.55		17.55
0220	Double, 6' x 7' high			12	.667			23.50		23.50
0500	Interior, 1-3/8" thick, single, 3' x 7' high			20	.400			14.05		14.05
0520	Double, 6' x 7' high			16	.500			17.55		17.55
0700	Bi-folding, 3' x 6'-8" high			20	.400			14.05		14.05
0720	6' x 6'-8" high			18	.444			15.60		15.60
0900	Bi-passing, 3' x 6'-8" high			16	.500			17.55		17.55
0940	6' x 6'-8" high			14	.571			20		20
1500	Remove and reset, minimum		1 Corp	8	1			44		44
1520	Maximum			6	1.333			59		59
2000	Frames, including trim, metal			8	1			44		44
2200	Wood		2 Corp	32	.500			22		22
3000	Special doors, counter doors			6	2.667			118		118
3100	Double octing			10	1.600			70.50		70.50
3200	Floor door (trap type), or access type			8	2			88		88
3300	Glass, sliding, including frames			12	1.333			59		59
3400	Overhead, commercial, 12' x 12' high			4	4			176		176
3440	up to 20' x 16' high			3	5.333			235		235
3445	up to 35' x 30' high			1	16			705		705
3500	Residential, 9' x 7' high			8	2			88		88
3540	16' x 7' high			7	2.286			101		101
3600	Remove and reset, minimum			4	4			176		176
3620	Maximum			2.50	6.400			282		282
3700	Roll-up grille			5	3.200			141		141
3800	Revolving door			2	8			355		355
3900	Storefront swing door			3	5.333			235		235
6600	Demo flexible transparent strip entrance		3 Shee	115	.209	SF Surf		10.90		10.90
7100	Remove double swing pneumatic doors, openers and sensors		2 Skwk	.50	32	Opng.		1,450		1,450
7110	Remove automatic operators, industrial, sliding doors, to 12' wide		"	.40	40	"		1,825		1,825
7550	Hongor door demo		2 Swwk	330	.048	S.F.		2.39		2.39
7570	Remove shock absorbing door		"	1.90	8.421	Opng.		415		415

08 05 05.20 Selective Demolition of Windows

0010	SELECTIVE DEMOLITION OF WINDOWS	R024119-10								
0200	Aluminum, including trim, to 12 S.F.		1 Clob	16	.500	Eo.		17.55		17.55
0240	To 25 S.F.			11	.727			25.50		25.50
0280	To 50 S.F.			5	1.600			56		56
0320	Storm windows/screens, to 12 S.F.			27	.296			10.40		10.40
0360	To 25 S.F.			21	.381			13.35		13.35
0400	To 50 S.F.			16	.500			17.55		17.55
0600	Gloss, minimum			200	.040	S.F.		1.40		1.40
0620	Maximum			150	.053	"		1.87		1.87
1000	Steel, including trim, to 12 S.F.			13	.615	Eo.		21.50		21.50
1020	To 25 S.F.			9	.889			31		31
1040	To 50 S.F.			4	2			70		70
2000	Wood, including trim, to 12 S.F.			22	.364			12.75		12.75
2020	To 25 S.F.			18	.444			15.60		15.60
2060	To 50 S.F.			13	.615			21.50		21.50
2065	To 180 S.F.			8	1			35		35
4300	Remove bow/bow window		2 Corp	6	2.667			118		118
4410	Remove skylight, plstc domes, flush/curb mtd		G-3	395	.081	S.F.		3.53		3.53
5020	Remove and reset window, minimum		1 Corp	6	1.333	Eo.		59		59

05 Common Work Results for Openings

5 05 – Selective Windows and Doors Demolition

05.20 Selective Demolition of Windows	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Average	1 Corp	4	2	Ea.		88		88	136
Maximum	↓	2	4	↓		176		176	271

11 Metal Doors and Frames

1 63 – Metal Screen and Storm Doors and Frames

63.23 Aluminum Screen and Storm Doors and Frames

ALUMINUM SCREEN AND STORM DOORS AND FRAMES

Combination storm and screen									
Clear anodic coating, 2'-8" wide	2 Corp	14	1.143	Ea.	161	50.50		211.50	255
3'-0" wide	"	14	1.143	"	161	50.50		211.50	255
For 7' door height, odd					8%				
Mill finish, 2'-8" wide	2 Corp	14	1.143	Ea.	231	50.50		281.50	330
3'-0" wide	"	14	1.143		253	50.50		303.50	355
For 7'-0" door, odd					8%				
White painted, 2'-8" wide	2 Corp	14	1.143		283	50.50		333.50	390
3'-0" wide	"	14	1.143		299	50.50		349.50	410
For 7'-0" door, odd					8%				
Wood door & screen, see Section 08 14 33.20									

11 74 – Sliding Metal Grilles

1 74.10 Rolling Grille Supports

ROLLING GRILLE SUPPORTS

Rolling grille supports, overhead framed	E-4	36	.889	L.F.	24.50	44.50	3.38	72.38	110
--	-----	----	------	------	-------	-------	------	-------	-----

12 Metal Frames

12 13 – Hollow Metal Frames

2 13.13 Standard Hollow Metal Frames

STANDARD HOLLOW METAL FRAMES

16 ga., up to 5-3/4" jamb depth									
6'-8" high, 3'-0" wide, single	G	2 Corp	16	1	Ea.	143	44	187	225
3'-6" wide, single	G		16	1		150	44	194	232
4'-0" wide, single	G		16	1		150	44	194	232
6'-0" wide, double	G		14	1.143		204	50.50	254.50	300
8'-0" wide, double	G		14	1.143		213	50.50	263.50	310
7'-0" high, 3'-0" wide, single	G		16	1		148	44	192	231
3'-6" wide, single	G		16	1		155	44	199	238
4'-0" wide, single	G		16	1		155	44	199	238
6'-0" wide, double	G		14	1.143		194	50.50	244.50	292
8'-0" wide, double	G		14	1.143		229	50.50	279.50	330
16 ga., up to 4-7/8" deep, 7'-0" H, 3'-0" W, single	G		16	1		163	44	207	247
6'-0" wide, double	G		14	1.143		184	50.50	234.50	280
16 ga., 8-3/4" deep, 7'-0" H, 3'-0" W, single	G		16	1		199	44	243	287
6'-0" wide, double	G		14	1.143		234	50.50	284.50	335
14 ga., up to 3-7/8" deep, 7'-0" high, 3'-0" wide, single	G		16	1		177	44	221	263
6'-0" wide, double	G		14	1.143		213	50.50	263.50	310
14 ga., up to 5-3/4" deep, 6'-8" high, 3'-0" wide, single	G		16	1		149	44	193	232
3'-6" wide, single	G		16	1		193	44	237	280
4'-0" wide, single	G		16	1		193	44	237	280
up to 5-3/4" jamb depth, 7'-0" high, 4'-0" wide, single	G		15	1.067		185	47	232	276
6'-0" wide, double	G		12	1.333		235	59	294	350

08 12 Metal Frames

08 12 13 - Hollow Metal Frames

08 12 13.13 Standard Hollow Metal Frames		Crew	Daily Output	Labor Hours	Unit	Material	2012 Base Costs		Total	Per Incl
							Labor	Equipment		
3640	8'-0" wide, double	G	2 Corp	12	1.333	Ea.	246	59	305	
3700	8'-0" high, 4'-0" wide, single	G		15	1.067		235	47	282	
3740	8'-0" wide, double	G		12	1.333		290	59	349	
4000	6-3/4" deep, 7'-0" high, 4'-0" wide, single	G		15	1.067		216	47	263	
4020	6'-0" wide, double	G		12	1.333		268	59	327	
4040	8'-0" wide, double	G		12	1.333		276	59	335	
4100	8'-0" high, 4'-0" wide, single	G		15	1.067		276	47	323	
4140	8'-0" wide, double	G		12	1.333		320	59	379	
4400	8-3/4" deep, 7'-0" high, 4'-0" wide, single	G		15	1.067		252	47	299	
4440	8'-0" wide, double	G		12	1.333		315	59	374	
4500	8'-0" high, 4'-0" wide, single	G		15	1.067		283	47	330	
4540	8'-0" wide, double	G		12	1.333		350	59	409	
4900	For welded frames, add						63		63	
5400	14 ga., "B" label, up to 5-3/4" deep, 7'-0" high, 4'-0" wide, single	G	2 Corp	15	1.067		204	47	251	
5440	8'-0" wide, double	G		12	1.333		267	59	326	
5800	6-3/4" deep, 7'-0" high, 4'-0" wide, single	G		15	1.067		218	47	265	
5840	8'-0" wide, double	G		12	1.333		380	59	439	
6200	8-3/4" deep, 7'-0" high, 4'-0" wide, single	G		15	1.067		305	47	352	
6240	8'-0" wide, double	G		12	1.333		355	59	414	
6300	For "A" label use same price as "B" label									
6400	For baked enamel finish, add						30%	15%		
6500	For galvanizing, add						20%			
6600	For hospital stop, add					Ea.	295		295	
6620	For hospital stop, stainless steel add					"	380		380	
7900	Transom lite frames, fixed, add		2 Corp	155	.103	S.F.	54	4.55	58.55	
8000	Movable, add		"	130	.123	"	68	5.45	73.45	

08 12 13.25 Channel Metal Frames

08 12 13.25 CHANNEL METAL FRAMES										
0010	Steel channels with anchors and bar stops									
0100	6" channel @ 8.2#/L.F., 3' x 7' door, weighs 150#	G	E-4	13	2.462	Ea.	225	123	9.35	357.35
0200	8" channel @ 11.5#/L.F., 6' x 8' door, weighs 275#	G		9	3.556		415	177	13.50	605.50
0300	8' x 12' door, weighs 400#	G		6.50	4.923		600	245	18.70	863.70
0400	10" channel @ 15.3#/L.F., 10' x 10' door, weighs 500#	G		6	5.333		750	266	20.50	1,036.50
0500	12' x 12' door, weighs 600#	G		5.50	5.818		900	290	22	1,212
0600	12" channel @ 20.7#/L.F., 12' x 12' door, weighs 825#	G		4.50	7.111		1,250	355	27	1,632
0700	12' x 16' door, weighs 1000#	G		4	8		1,500	400	30.50	1,930.50
0800	For frames without bar stops, light sections, deduct						15%			
0900	Heavy sections, deduct						10%			

08 13 Metal Doors

08 13 13 - Hollow Metal Doors

08 13 13.13 Standard Hollow Metal Doors

08 13 13.13 STANDARD HOLLOW METAL DOORS										
0010	Flush, full panel, hollow core									
0015	When noted doors are prepared but do not include glass or louvers									
0017	1-3/8" thick, 20 ga., 2'-0" x 6'-8"	G	2 Corp	20	.800	Ea.	335	35.50		370.50
0020	2'-8" x 6'-8"	G		18	.889		350	39		389
0040	3'-0" x 6'-8"	G		17	.941		350	41.50		391.50
0100	3'-0" x 7'-0"	G		17	.941		360	41.50		401.50
0120	For vision lite, add						93			93
0140	For narrow lite, add						101			101

13 Metal Doors

13.13 - Hollow Metal Doors

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
							Labor	Equipment		
13.13.13 Standard Hollow Metal Doors										
Half glass, 20 ga., 2'-0" x 6'-8"	G	2 Carp	20	.800	Ea.	490	35.50		525.50	595
2'-8" x 6'-8"	G		18	.889		515	39		554	625
3'-0" x 6'-8"	G		17	.941		510	41.50		551.50	625
3'-0" x 7'-0"	G		17	.941		615	41.50		656.50	745
1-3/8" thick, 18 ga., 2'-0" x 6'-8"	G		20	.800		400	35.50		435.50	495
3'-0" x 6'-8"	G		17	.941		405	41.50		446.50	510
3'-0" x 7'-0"	G		17	.941		410	41.50		451.50	520
For vision lite, add						93			93	102
For narrow lite, add						101			101	111
Half glass, 18 ga., 2'-0" x 6'-8"	G	2 Carp	20	.800		555	35.50		590.50	670
2'-8" x 6'-8"	G		18	.889		575	39		614	695
3'-0" x 6'-8"	G		17	.941		565	41.50		606.50	685
3'-0" x 7'-0"	G		17	.941		565	41.50		606.50	685
Hollow core, 1-3/4" thick, full panel, 20 ga., 2'-8" x 6'-8"	G		18	.889		415	39		454	515
3'-0" x 6'-8"	G		17	.941		420	41.50		461.50	525
3'-0" x 7'-0"	G		17	.941		435	41.50		476.50	540
4'-0" x 7'-0"	G		15	1.067		630	47		677	770
4'-0" x 8'-0"	G		13	1.231		735	54.50		789.50	895
18 ga., 2'-8" x 6'-8"	G		17	.941		490	41.50		531.50	605
3'-0" x 6'-8"	G		16	1		475	44		519	595
3'-0" x 7'-0"	G		17	.941		595	41.50		636.50	715
4'-0" x 7'-0"	G		14	1.143		630	50.50		680.50	775
4'-0" x 8'-0"	G		17	.941		735	41.50		776.50	875
For vision lite, add						93			93	102
For narrow lite, add						101			101	111
Half glass, 20 ga., 2'-8" x 6'-8"	G	2 Carp	20	.800		575	35.50		610.50	690
3'-0" x 6'-8"	G		18	.889		575	39		614	695
3'-0" x 7'-0"	G		18	.889		595	39		634	710
18 ga., 2'-8" x 6'-8"	G		18	.889		640	39		679	765
3'-0" x 6'-8"	G		17	.941		635	41.50		676.50	760
3'-0" x 7'-0"	G		17	.941		645	41.50		686.50	775
4'-0" x 7'-0"	G		15	1.067		785	47		832	940
4'-0" x 8'-0"	G		14	1.143		890	50.50		940.50	1,050
Flush full panel, 16 gauge, steel hollow core										
1-3/8" same price as 1-3/4"										
2'-0" x 6'-8"		2 Carp	20	.800	Ea.	555	35.50		590.50	665
2'-8" x 6'-8"			20	.800		555	35.50		590.50	670
3'-0" x 6'-8"			20	.800		550	35.50		585.50	660
2'-8" x 7'-0"			18	.889		575	39		614	690
3'-0" x 7'-0"			18	.889		560	39		599	675
3'-6" x 7'-0"			18	.889		655	39		694	780
4'-0" x 7'-0"			18	.889		725	39		764	855
2'-8" x 8'-0"			18	.889		700	39		739	830
3'-0" x 8'-0"			18	.889		720	39		759	850
3'-6" x 8'-0"			18	.889		800	39		839	940
4'-0" x 8'-0"			18	.889		850	39		889	990
Insulated, 1-3/4" thick, full panel, 18 ga., 3'-0" x 6'-8"	G		15	1.067		475	47		522	600
2'-8" x 7'-0"	G		16	1		505	44		549	625
3'-0" x 7'-0"	G		15	1.067		490	47		537	615
4'-0" x 8'-0"	G		13	1.231		740	54.50		794.50	895
For vision lite, add						93			93	102
For narrow lite, add						101			101	111
Half glass, 18 ga., 3'-0" x 6'-8"	G	2 Carp	16	1		635	44		679	765

08 13 Metal Doors

08 13 13 - Hollow Metal Doors

08 13 13.13 Standard Hollow Metal Doors				Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Inc
									Labor	Equipment		
1840	2'-8" x 7'-0"	G	2 Corp	17	.941	Ea.		660	41.50		701.50	
1860	3'-0" x 7'-0"	G		16	1			685	44		729	
1900	4'-0" x 8'-0"	G		14	1.143			670	50.50		720.50	
8100	For bottom louver, add							274			274	
8110	For baked enamel finish, add							30%	15%			
8120	For galvanizing, add							20%				

08 13 13.15 Metal Fire Doors

08 13 13.15 METAL FIRE DOORS				R081313-20								
0010	Steel, flush, "B" label, 90 minute											
0015	Full panel, 20 ga., 2'-0" x 6'-8"		2 Corp	20	.800	Ea.		420	35.50		455.50	
0040	2'-8" x 6'-8"			18	.889			435	39		474	
0060	3'-0" x 6'-8"			17	.941			435	41.50		476.50	
0080	3'-0" x 7'-0"			17	.941			455	41.50		496.50	
0140	18 ga., 3'-0" x 6'-8"			16	1			495	44		539	
0160	2'-8" x 7'-0"			17	.941			520	41.50		561.50	
0180	3'-0" x 7'-0"			16	1			505	44		549	
0200	4'-0" x 7'-0"			15	1.067			650	47		697	
0220	For "A" label, 3 hour, 18 ga., use same price as "B" label											
0240	For vision lite, add					Ea.		156			156	
0520	Flush, "B" label 90 min., egress care, 20 ga., 2'-0" x 6'-8"		2 Corp	18	.889			655	39		694	
0540	2'-8" x 6'-8"			17	.941			665	41.50		706.50	
0560	3'-0" x 6'-8"			16	1			665	44		709	
0580	3'-0" x 7'-0"			16	1			685	44		729	
0640	Flush, "A" label 3 hour, egress care, 18 ga., 3'-0" x 6'-8"			15	1.067			720	47		767	
0660	2'-8" x 7'-0"			16	1			750	44		794	
0680	3'-0" x 7'-0"			15	1.067			740	47		787	
0700	4'-0" x 7'-0"			14	1.143			885	50.50		935.50	

08 13 13.20 Residential Steel Doors

08 13 13.20 RESIDENTIAL STEEL DOORS												
0010	Prehung, insulated, exterior											
0020	Embossed, full panel, 2'-8" x 6'-8"	G	2 Corp	17	.941	Ea.		298	41.50		339.50	
0040	3'-0" x 6'-8"	G		15	1.067			243	47		290	
0060	3'-0" x 7'-0"	G		15	1.067			330	47		377	
0070	5'-4" x 6'-8", double	G		8	2			625	88		713	
0220	Half glass, 2'-8" x 6'-8"			17	.941			320	41.50		361.50	
0240	3'-0" x 6'-8"			16	1			320	44		364	
0260	3'-0" x 7'-0"			16	1			370	44		414	
0270	5'-4" x 6'-8", double			8	2			650	88		738	
1320	Flush face, full panel, 2'-8" x 6'-8"			16	1			248	44		292	
1340	3'-0" x 6'-8"			15	1.067			248	47		295	
1360	3'-0" x 7'-0"			15	1.067			296	47		343	
1380	5'-4" x 6'-8", double			8	2			495	88		583	
1420	Half glass, 2'-8" x 6'-8"			17	.941			325	41.50		366.50	
1440	3'-0" x 6'-8"			16	1			325	44		369	
1460	3'-0" x 7'-0"			16	1			350	44		394	
1480	5'-4" x 6'-8", double			8	2			635	88		723	
1500	Sidelight, full lite, 1'-0" x 6'-8" with grille							244			244	
1510	1'-0" x 6'-8", low e							264			264	
1520	1'-0" x 6'-8", half lite							254			254	
1530	1'-0" x 6'-8", half lite, low e							262			262	
2300	Interior, residential, closet, bi-fold, 6'-8" x 2'-0" wide		2 Corp	16	1			161	44		205	
2330	3'-0" wide			16	1			200	44		244	

13 Metal Doors

13 13 - Hollow Metal Doors

13 13.20 Residential Steel Doors	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
4'-0" wide	2 Carp	15	1.067	Ea.	260	47		307	360
5'-0" wide		14	1.143		315	50.50		365.50	430
6'-0" wide	▼	13	1.231	▼	330	54.50		384.50	450

13 13.25 Doors Hollow Metal

DOORS HOLLOW METAL	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Exterior, commercial, flush, 20 ga., 1-3/4" x 7'-0" x 2'-6" wide	2 Carp	15	1.067	Ea.	390	47		437	505
2'-8" wide		15	1.067		435	47		482	550
3'-0" wide		14	1.143		435	50.50		485.50	555
18 ga., 1-3/4" x 7'-0" x 2'-6" wide		15	1.067		495	47		542	615
2'-8" wide		15	1.067		500	47		547	625
3'-0" wide		14	1.143		485	50.50		535.50	615
16 ga., 1-3/4" x 7'-0" x 2'-6" wide		15	1.067		560	47		607	690
2'-8" wide		15	1.067		565	47		612	700
3'-0" wide		14	1.143		550	50.50		600.50	685
3'-6" wide		14	1.143		645	50.50		695.50	785
Fire door, "A" label, 1-3/4" x 7'-0" x 2'-6" wide		15	1.067		645	47		692	785
2'-8" wide		15	1.067		655	47		702	795
3'-0" wide		14	1.143		640	50.50		690.50	785
3'-6" wide		14	1.143		730	50.50		780.50	885
"B" label, 2'-6" wide		15	1.067		585	47		632	715
2'-8" wide		15	1.067		590	47		637	720
3'-0" wide	▼	14	1.143	▼	580	50.50		630.50	720

13 16 - Aluminum Doors

13 16.10 Commercial Aluminum Doors

COMMERCIAL ALUMINUM DOORS, flush, no glazing	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Flush panel doors, pair of 2'-6" x 7'-0"	2 Swwk	2	8	Pr.	1,375	395		1,770	2,225
3'-0" x 7'-0", single		2.50	6.400	Ea.	780	315		1,095	1,425
Pair of 3'-0" x 7'-0"		2	8	Pr.	1,475	395		1,870	2,325
3'-6" x 7'-0", single	▼	2.50	6.400	Ea.	935	315		1,250	1,600

13 73 - Sliding Metal Doors

13 73.10 Steel Sliding Doors

STEEL SLIDING DOORS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Up to 50' x 18', electric, standard duty, minimum	1-5	360	.156	S.F.	29	7.70	1.94	38.64	47
Maximum		340	.165		45.50	8.15	2.05	55.70	66.50
Heavy duty, minimum		297	.189		37	9.30	2.35	48.65	59.50
Maximum	▼	277	.202	▼	92.50	10	2.52	105.02	122

14 Wood Doors

14 13 - Carved Wood Doors

14 13.10 Types of Wood Doors, Carved

TYPES OF WOOD DOORS, CARVED	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Solid wood, 1-3/4" thick stile and rail									
Mahogany, 3'-0" x 7'-0", minimum	2 Carp	14	1.143	Ea.	965	50.50		1,015.50	1,125
Maximum		10	1.600		1,750	70.50		1,820.50	2,025
3'-6" x 8'-0", minimum		10	1.600		1,250	70.50		1,320.50	1,475
Maximum		8	2		2,400	88		2,488	2,775
Pine, 3'-0" x 7'-0", minimum		14	1.143		490	50.50		540.50	615
Maximum		10	1.600		825	70.50		895.50	1,025
3'-6" x 8'-0", minimum		10	1.600		900	70.50		970.50	1,100
Maximum	▼	8	2	▼	1,825	88		1,913	2,150

08 14 Wood Doors

08 14 13 - Carved Wood Doors

08 14 13.10 Types of Wood Doors, Carved

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor Equipment	Total	Ind
3200	Red oak, 3'-0" x 7'-0", minimum	2 Corp	14	1.143	Eq.	1,650	50.50	1,700.50	1.94
3210	Maximum		10	1.600		2,200	70.50	2,270.50	2.53
3220	3'-6" x 8'-0", minimum		10	1.600		2,500	70.50	2,570.50	2.87
3230	Maximum	▼	8	2	▼	3,200	88	3,288	3.64
4000	Hand carved door, mahogany								
4020	3'-0" x 7'-0", minimum	2 Corp	14	1.143	Eq.	1,675	50.50	1,725.50	1.95
4030	Maximum		11	1.455		3,650	64	3,714	4.11
4040	3'-6" x 8'-0", minimum		10	1.600		2,500	70.50	2,570.50	2.88
4050	Maximum		8	2		3,600	88	3,688	4.03
4200	Rose wood, 3'-0" x 7'-0", minimum		14	1.143		5,100	50.50	5,150.50	5.60
4210	Maximum		11	1.455		13,600	64	13,664	15.10
4220	3'-6" x 8'-0", minimum		10	1.600		5,800	70.50	5,870.50	6.41
4225	Maximum	▼	10	1.600		8,800	70.50	8,870.50	9.77
4280	For 6'-8" high door, deduct from 7'-0" door					34		34	.38
4400	For custom finish, odd					450		450	.49
4600	Side light, mahogany, 7'-0" x 1'-6" wide, minimum	2 Corp	18	.889		1,000	39	1,039	1.15
4610	Maximum		14	1.143		2,625	50.50	2,675.50	2.97
4620	8'-0" x 1'-6" wide, minimum		14	1.143		1,700	50.50	1,750.50	1.95
4630	Maximum		10	1.600		2,000	70.50	2,070.50	2.30
4640	Side light, oak, 7'-0" x 1'-6" wide, minimum		18	.889		1,100	39	1,139	1.25
4650	Maximum		14	1.143		2,000	50.50	2,050.50	2.27
4660	8'-0" x 1'-6" wide, minimum		14	1.143		1,000	50.50	1,050.50	1.17
4670	Maximum	▼	10	1.600	▼	2,000	70.50	2,070.50	2.30

08 14 16 - Flush Wood Doors

08 14 16.09 Smooth Wood Doors

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor Equipment	Total	Ind
0010	SMOOTH WOOD DOORS								
0015	Flush, interior, hollow core								
0025	Louise face, 1-3/8", 3'-0" x 6'-8"	2 Corp	17	.941	Eq.	53.50	41.50	95	1.2
0030	4'-0" x 6'-8"		16	1		126	44	170	2.0
0080	1-3/4", 2'-0" x 6'-8"		17	.941		39	41.50	80.50	1.0
0108	3'-0" x 7'-0"		16	1	▼	99.50	44	143.50	1.7
0112	Pair of 3'-0" x 7'-0"		9	1.778	Pr.	192	78.50	270.50	3.3
0140	Birch face, 1-3/8", 2'-6" x 6'-8"		17	.941	Eq.	84	41.50	125.50	1.5
0180	3'-0" x 6'-8"		17	.941		94.50	41.50	136	1.6
0200	4'-0" x 6'-8"		16	1		158	44	202	2.4
0202	1-3/4", 2'-0" x 6'-8"		17	.941		48	41.50	89.50	1.1
0210	3'-0" x 7'-0"		16	1	▼	108	44	152	1.8
0214	Pair of 3'-0" x 7'-0"		9	1.778	Pr.	207	78.50	285.50	3.5
0220	Oak face, 1-3/8", 2'-0" x 6'-8"		17	.941	Eq.	96	41.50	137.50	1.7
0280	3'-0" x 6'-8"		17	.941		110	41.50	151.50	1.8
0300	4'-0" x 6'-8"		16	1		134	44	178	2.1
0305	1-3/4", 2'-6" x 6'-8"		17	.941		106	41.50	147.50	1.8
0310	3'-0" x 7'-0"		16	1		196	44	240	2.8
0320	Walnut face, 1-3/8", 2'-0" x 6'-8"		17	.941		178	41.50	219.50	2.5
0340	2'-6" x 6'-8"		17	.941		184	41.50	225.50	2.6
0380	3'-0" x 6'-8"		17	.941		192	41.50	233.50	2.7
0400	4'-0" x 6'-8"	▼	16	1		213	44	257	3.0
0430	For 7'-0" high, odd					25		25	.3
0440	For 8'-0" high, odd					35		35	.4
0480	For prefinishing, clear, odd					40		40	.5
0500	For prefinishing, stain, odd					50		50	.6
1320	M.D. overlay on hardboard, 1-3/8", 2'-0" x 6'-8"	2 Corp	17	.941	▼	110	41.50	151.50	1.8

14 Wood Doors

14 16 – Flush Wood Doors

4 16.09 Smooth Wood Doors	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor Equipment	Total	Total Inc O&P
2'-6" x 6'-8"	2 Carp	17	.941	Ea.	110	41.50	151.50	185
3'-0" x 6'-8"	↓	17	.941		120	41.50	161.50	196
4'-0" x 6'-8"	▼	16	1		170	44	214	255
For 7'-0" high, add					15		15	16.50
For 8'-0" high, add					30		30	33
H.P. plastic laminate, 1-3/8", 2'-0" x 6'-8"	2 Carp	16	1		232	44	276	325
2'-6" x 6'-8"	↓	16	1		232	44	276	325
3'-0" x 6'-8"	↓	15	1.067		281	47	328	385
4'-0" x 6'-8"	▼	14	1.143		365	50.50	415.50	485
For 7'-0" high, add					15		15	16.50
For 8'-0" high, add					30		30	33
Particle core, lauan face, 1-3/8", 2'-6" x 6'-8"	2 Carp	15	1.067		90	47	137	172
3'-0" x 6'-8"	↓	14	1.143		92	50.50	142.50	179
3'-0" x 7'-0"	↓	13	1.231		96.50	54.50	151	190
4'-0" x 7'-0"	↓	12	1.333		120	59	179	223
Birch face, 1-3/8", 2'-6" x 6'-8"	↓	15	1.067		100	47	147	183
3'-0" x 6'-8"	↓	14	1.143		110	50.50	160.50	199
3'-0" x 7'-0"	↓	13	1.231		120	54.50	174.50	216
4'-0" x 7'-0"	↓	12	1.333		135	59	194	240
1-3/4", 3'-0" x 7'-0"	↓	13	1.231		120	54.50	174.50	216
Oak face, 1-3/8", 2'-6" x 6'-8"	↓	15	1.067		113	47	160	197
3'-0" x 6'-8"	↓	14	1.143		125	50.50	175.50	216
3'-0" x 7'-0"	↓	13	1.231		130	54.50	184.50	227
4'-0" x 7'-0"	↓	12	1.333		152	59	211	258
1-3/4" 3'-0" x 7'-0"	↓	13	1.231		159	54.50	213.50	259
Walnut face, 1-3/8", 2'-0" x 6'-8"	↓	15	1.067		120	47	167	205
2'-6" x 6'-8"	↓	14	1.143		135	50.50	185.50	227
3'-0" x 6'-8"	↓	13	1.231		152	54.50	206.50	251
4'-0" x 6'-8"	▼	12	1.333		200	59	259	310
For 8'-0" high, add					40		40	44
For 8'-0" high walnut, add					35		35	38.50
For solid wood core, add					39		39	43
For prefinishing, clear, add					35		35	38.50
For prefinishing, stain, add					52		52	57
M.D. overlay on hardboard, 1-3/8", 2'-6" x 6'-8"	2 Carp	14	1.143		106	50.50	156.50	195
3'-0" x 6'-8"	↓	13	1.231		112	54.50	166.50	207
3'-0" x 7'-0"	↓	12	1.333		114	59	173	216
4'-0" x 7'-0"	▼	10	1.600		150	70.50	220.50	274
For 8'-0" height, add					35		35	38.50
For solid wood core, add					40		40	44
H.P. plastic laminate, 1-3/8", 2'-6" x 6'-8"	2 Carp	13	1.231		155	54.50	209.50	255
3'-0" x 6'-8"	↓	12	1.333		180	59	239	289
3'-0" x 7'-0"	↓	11	1.455		185	64	249	305
4'-0" x 7'-0"	▼	8	2		222	88	310	380
For 8'-0" height, add					35		35	38.50
For solid wood core, add					40		40	44
Exterior, flush, solid core, birch, 1-3/4" x 2'-6" x 7'-0"	2 Carp	15	1.067		165	47	212	255
2'-8" wide	↓	15	1.067		153	47	200	241
3'-0" wide	↓	14	1.143		197	50.50	247.50	294
Oak faced 1-3/4" x 2'-6" x 7'-0"	↓	15	1.067		185	47	232	277
2'-8" wide	↓	15	1.067		200	47	247	293
3'-0" wide	↓	14	1.143		210	50.50	260.50	310
Walnut faced, 1-3/4" x 2'-6" x 7'-0"	↓	15	1.067		270	47	317	370

08 14 Wood Doors

08 14 16 – Flush Wood Doors

08 14 16.09 Smooth Wood Doors

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind C
4220	2'-8" wide	2 Corp	15	1.067	Ea.	285	47		332	37
4240	3'-0" wide	↓	14	1.143		295	50.50		345.50	40
4300	For 6'-8" high door, deduct from 7'-0" door					16			16	1
5000	Wood doors, for vision lite, add					93			93	10
5010	Wood doors, for narrow lite, add					101			101	11
5015	Wood doors, for bottom (or top) louver, add				↓	274			274	30

08 14 16.20 Wood Fire Doors

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind C
0010	WOOD FIRE DOORS									
0020	Particle core, 7 face plys, "B" label,									
0040	1 hour, birch face, 1-3/4" x 2'-6" x 6'-8"	2 Corp	14	1.143	Ea.	405	50.50		455.50	52
0080	3'-0" x 6'-8"		13	1.231		400	54.50		454.50	52
0090	3'-0" x 7'-0"		12	1.333		435	59		494	57
0100	4'-0" x 7'-0"		12	1.333		540	59		599	68
0140	Oak face, 2'-6" x 6'-8"		14	1.143		340	50.50		390.50	45
0180	3'-0" x 6'-8"		13	1.231		400	54.50		454.50	52
0190	3'-0" x 7'-0"		12	1.333		450	59		509	58
0200	4'-0" x 7'-0"		12	1.333		510	59		569	65
0240	Walnut face, 2'-6" x 6'-8"		14	1.143		460	50.50		510.50	58
0280	3'-0" x 6'-8"		13	1.231		480	54.50		534.50	61
0290	3'-0" x 7'-0"		12	1.333		500	59		559	64
0300	4'-0" x 7'-0"		12	1.333		620	59		679	77
0440	M.D. overlay on hardboard, 2'-6" x 6'-8"		15	1.067		310	47		357	41
0480	3'-0" x 6'-8"		14	1.143		370	50.50		420.50	48
0490	3'-0" x 7'-0"		13	1.231		390	54.50		444.50	51
0500	4'-0" x 7'-0"		12	1.333		410	59		469	54
0740	90 minutes, birch face, 1-3/4" x 2'-6" x 6'-8"		14	1.143		315	50.50		365.50	42
0780	3'-0" x 6'-8"		13	1.231		310	54.50		364.50	42
0790	3'-0" x 7'-0"		12	1.333		380	59		439	51
0800	4'-0" x 7'-0"		12	1.333		490	59		549	63
0840	Oak face, 2'-6" x 6'-8"		14	1.143		430	50.50		480.50	55
0880	3'-0" x 6'-8"		13	1.231		440	54.50		494.50	57
0890	3'-0" x 7'-0"		12	1.333		455	59		514	59
0900	4'-0" x 7'-0"		12	1.333		590	59		649	74
0940	Walnut face, 2'-6" x 6'-8"		14	1.143		400	50.50		450.50	52
0980	3'-0" x 6'-8"		13	1.231		410	54.50		464.50	53
0990	3'-0" x 7'-0"		12	1.333		470	59		529	60
1000	4'-0" x 7'-0"		12	1.333		620	59		679	77
1140	M.D. overlay on hardboard, 2'-6" x 6'-8"		15	1.067		355	47		402	46
1180	3'-0" x 6'-8"		14	1.143		375	50.50		425.50	49
1190	3'-0" x 7'-0"		13	1.231		405	54.50		459.50	53
1200	4'-0" x 7'-0"		12	1.333		455	59		514	59
1240	For 8'-0" height, add					70			70	7
1260	For 8'-0" height walnut, add				↓	85			85	9
2200	Custom architectural "B" label, flush, 1-3/4" thick, birch,									
2210	Solid core									
2220	2'-6" x 7'-0"	2 Corp	15	1.067	Ea.	300	47		347	40
2260	3'-0" x 7'-0"		14	1.143		310	50.50		360.50	42
2300	4'-0" x 7'-0"		13	1.231		400	54.50		454.50	52
2420	4'-0" x 8'-0"	↓	11	1.455		430	64		494	57
2480	For oak veneer, add					50%				
2500	For walnut veneer, add				↓	75%				

14 Wood Doors

4 23 – Clad Wood Doors

23.13 Metal-Faced Wood Doors	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
METAL-FACED WOOD DOORS									
Interior, flush type, 3' x 7'	2 Corp	4.30	3.721	Opng.	350	164		514	635
23.20 Tin Clad Wood Doors									
TIN CLAD WOOD DOORS									
3 ply, 6' x 7', double sliding, doors only	2 Corp	1	16	Opng.	2,000	705		2,705	3,275
For electric operator, odd	1 Elec	2	4	"	3,250	206		3,456	3,875

4 33 – Stile and Rail Wood Doors

33.10 Wood Doors Paneled

WOOD DOORS PANELED									
Interior, six panel, hollow core, 1-3/8" thick									
Molded hardboard, 2'-0" x 6'-8"	2 Corp	17	.941	Eq.	60	41.50		101.50	130
2'-6" x 6'-8"		17	.941		62	41.50		103.50	132
2'-8" x 6'-8"		17	.941		65	41.50		106.50	136
3'-0" x 6'-8"		17	.941		68	41.50		109.50	139
Embossed print, molded hardboard, 2'-0" x 6'-8"		17	.941		62	41.50		103.50	132
2'-6" x 6'-8"		17	.941		62	41.50		103.50	132
3'-0" x 6'-8"		17	.941		68	41.50		109.50	139
Six panel, solid, 1-3/8" thick, pine, 2'-0" x 6'-8"		15	1.067		150	47		197	238
2'-6" x 6'-8"		14	1.143		165	50.50		215.50	260
3'-0" x 6'-8"		13	1.231		140	54.50		194.50	238
Two panel, bored rail, solid, 1-3/8" thick, pine, 1'-6" x 6'-8"		16	1		265	44		309	360
2'-0" x 6'-8"		15	1.067		350	47		397	460
2'-6" x 6'-8"		14	1.143		395	50.50		445.50	515
Two panel, solid, 1-3/8" thick, fir, 2'-0" x 6'-8"		15	1.067		155	47		202	244
2'-6" x 6'-8"		14	1.143		205	50.50		255.50	305
3'-0" x 6'-8"		13	1.231		410	54.50		464.50	535
Five panel, solid, 1-3/8" thick, fir, 2'-0" x 6'-8"		15	1.067		275	47		322	380
2'-6" x 6'-8"		14	1.143		415	50.50		465.50	535
3'-0" x 6'-8"		13	1.231		415	54.50		469.50	540

4 33.20 Wood Doors Residential

WOOD DOORS RESIDENTIAL									
Exterior, combination storm & screen, pine									
2'-8" wide	2 Corp	10	1.600	Eq.	300	70.50		370.50	440
3'-0" wide		9	1.778		310	78.50		388.50	460
7'-1" x 3'-0" wide		9	1.778		330	78.50		408.50	485
Full lite, 6'-9" x 2'-6" wide		11	1.455		320	64		384	450
2'-8" wide		10	1.600		320	70.50		390.50	460
3'-0" wide		9	1.778		325	78.50		403.50	475
7'-1" x 3'-0" wide		9	1.778		355	78.50		433.50	510
Dutch door, pine, 1-3/4" x 2'-8" x 6'-8", minimum		12	1.333		715	59		774	875
Maximum		10	1.600		900	70.50		970.50	1,100
3'-0" wide, minimum		12	1.333		715	59		774	875
Maximum		10	1.600		900	70.50		970.50	1,100
Entrance door, colonial, 1-3/4" x 6'-8" x 2'-8" wide		16	1		485	44		529	605
6 panel pine, 3'-0" wide		15	1.067		445	47		492	565
8 panel pine, 2'-8" wide		16	1		575	44		619	705
3'-0" wide		15	1.067		560	47		607	690
For tempered safety glass lites, (min of 2) odd					76.50			76.50	84.50
Flush, birch, solid core, 1-3/4" x 6'-8" x 2'-8" wide	2 Corp	16	1		110	44		154	189
3'-0" wide		15	1.067		115	47		162	199
7'-0" x 2'-8" wide		16	1		119	44		163	198

08 14 Wood Doors

08 14 33 - Stile and Rail Wood Doors

08 14 33.20 Wood Doors Residential

		Crew	Daily Output	Labor Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total
1360	3'-0" wide	2 Corp	15	1.067	Ea.	130	47		177	710
1380	Far tempered safety glass lites, add				▼	103			103	110
2700	Interior, closet, bi-fold, w/hardware, no frame or trim incl.									
2720	Flush, birch, 6'-6" or 6'-8" x 2'-6" wide	2 Corp	13	1.231	Ea.	67.50	54.50		122	110
2740	3'-0" wide		13	1.231		71.50	54.50		126	120
2760	4'-0" wide		12	1.333		109	59		168	210
2780	5'-0" wide		11	1.455		105	64		169	210
2800	6'-0" wide		10	1.600		128	70.50		198.50	230
3000	Raised panel pine, 6'-6" or 6'-8" x 2'-6" wide		13	1.231		190	54.50		244.50	280
3020	3'-0" wide		13	1.231		278	54.50		332.50	390
3040	4'-0" wide		12	1.333		305	59		364	430
3060	5'-0" wide		11	1.455		365	64		429	500
3080	6'-0" wide		10	1.600		400	70.50		470.50	550
3200	Louvered, pine 6'-6" or 6'-8" x 2'-6" wide		13	1.231		142	54.50		196.50	240
3220	3'-0" wide		13	1.231		206	54.50		260.50	310
3240	4'-0" wide		12	1.333		233	59		292	340
3260	5'-0" wide		11	1.455		260	64		324	380
3280	6'-0" wide		10	1.600	▼	287	70.50		357.50	420
4400	Bi-passing closet, incl. hardware and frame, no trim incl.									
4420	Flush, luan, 6'-8" x 4'-0" wide	2 Corp	12	1.333	Opng.	176	59		235	280
4440	5'-0" wide		11	1.455		187	64		251	300
4460	6'-0" wide		10	1.600		209	70.50		279.50	340
4600	Flush, birch, 6'-8" x 4'-0" wide		12	1.333		220	59		279	330
4620	5'-0" wide		11	1.455		212	64		276	330
4640	6'-0" wide		10	1.600		256	70.50		326.50	390
4800	Louvered, pine, 6'-8" x 4'-0" wide		12	1.333		405	59		464	530
4820	5'-0" wide		11	1.455		395	64		459	530
4840	6'-0" wide		10	1.600		525	70.50		595.50	680
5000	Paneled, pine, 6'-8" x 4'-0" wide		12	1.333		505	59		564	650
5020	5'-0" wide		11	1.455		410	64		474	550
5040	6'-0" wide		10	1.600		600	70.50		670.50	770
5042	8'-0" wide	▼	12	1.333	▼	1,025	59		1,084	1,220
6100	Folding accordion, closet, including track and frame									
6120	Vinyl, 2 layer, stock	2 Corp	10	1.600	Ea.	65.50	70.50		136	160
6140	Woven mahogany and vinyl, stock		10	1.600		56.50	70.50		127	170
6160	Wood slats with vinyl overlay, stock		10	1.600		150	70.50		220.50	270
6180	Economy vinyl, stock		10	1.600		39	70.50		109.50	150
6200	Rigid PVC	▼	10	1.600	▼	52	70.50		122.50	160
7310	Passage doors, flush, no frame included									
7320	Hardboard, hollow core, 1-3/8" x 6'-8" x 1'-6" wide	2 Corp	18	.889	Ea.	43	39		82	100
7330	2'-0" wide		18	.889		43	39		82	100
7340	2'-6" wide		18	.889		47.50	39		86.50	110
7350	2'-8" wide		18	.889		49	39		88	110
7360	3'-0" wide		17	.941		52	41.50		93.50	120
7420	Luan, hollow core, 1-3/8" x 6'-8" x 1'-6" wide		18	.889		32	39		71	90
7440	2'-0" wide		18	.889		34.50	39		73.50	90
7450	2'-4" wide		18	.889		38.50	39		77.50	100
7460	2'-6" wide		18	.889		38.50	39		77.50	100
7480	2'-8" wide		18	.889		40	39		79	100
7500	3'-0" wide		17	.941		42	41.50		83.50	110
7700	Birch, hollow core, 1-3/8" x 6'-8" x 1'-6" wide		18	.889		39.50	39		78.50	100
7720	2'-0" wide		18	.889		42	39		81	100
7740	2'-6" wide		18	.889	▼	49.50	39		88.50	110

14 Wood Doors

14 33 – Stile and Rail Wood Doors

14 33.20 Wood Doors Residential	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
2'-8" wide	2 Corp	18	.889	Eo.	50.50	39		89.50	116
3'-0" wide		17	.941		52	41.50		93.50	121
Pine louvered, 1-3/8" x 6'-8" x 1'-6" wide		19	.842		102	37		139	169
2'-0" wide		18	.889		128	39		167	202
2'-6" wide		18	.889		140	39		179	214
2'-8" wide		18	.889		147	39		186	223
3'-0" wide		17	.941		173	41.50		214.50	255
Pine paneled, 1-3/8" x 6'-8" x 1'-6" wide		19	.842		128	37		165	197
2'-0" wide		18	.889		152	39		191	228
2'-4" wide		18	.889		180	39		219	259
2'-6" wide		18	.889		180	39		219	259
2'-8" wide		18	.889		184	39		223	263
3'-0" wide		17	.941		203	41.50		244.50	287

14 40 – Interior Cafe Doors

14 40.10 Cafe Style Doors

CAFE STYLE DOORS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Interior cafe doors, 2'-6" opening, stock, panel pine	2 Corp	16	1	Eo.	192	44		236	279
3'-0" opening	"	16	1	"	199	44		243	287
Louvered pine									
2'-6" opening	2 Corp	16	1	Eo.	166	44		210	250
3'-0" opening		16	1		180	44		224	266
2'-6" opening, hardwood		16	1		247	44		291	340
3'-0" opening		16	1		272	44		316	365

16 Composite Doors

16 13 – Fiberglass Doors

16 13.10 Entrance Doors, Fiberglass

ENTRANCE DOORS, FIBEROUS GLASS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Exterior, fiberglass, door, 2'-8" wide x 6'-8" high	G 2 Corp	15	1.067	Eo.	259	47		306	360
3'-0" wide x 6'-8" high	G	15	1.067		259	47		306	360
3'-0" wide x 7'-0" high	G	15	1.067		460	47		507	580
3'-0" wide x 6'-8" high, with two lites	G	15	1.067		294	47		341	400
3'-0" wide x 8'-0" high, with two lites	G	15	1.067		495	47		542	620
Half gloss, 3'-0" wide x 6'-8" high	G	15	1.067		305	47		352	410
3'-0" wide x 6'-8" high, low e	G	15	1.067		330	47		377	440
3'-0" wide x 8'-0" high	G	15	1.067		580	47		627	715
3'-0" wide x 8'-0" high, low e	G	15	1.067		640	47		687	775
Side lights, 1'-0" wide x 6'-8" high,	G				251			251	276
1'-0" wide x 6'-8" high, low e	G				256			256	281
1'-0" wide x 6'-8" high, full glass	G				275			275	305
1'-0" wide x 6'-8" high, low e	G				284			284	315

16 14 – French Doors

16 14.10 Exterior Doors With Glass Lites

EXTERIOR DOORS WITH GLASS LITES	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
French, Fir, 1-3/4", 3'-0" wide x 6'-8" high	2 Corp	12	1.333	Eo.	600	59		659	750
Double		12	1.333		1,200	59		1,259	1,425
Maple, 1-3/4", 3'-0" wide x 6'-8" high		12	1.333		675	59		734	835
Double		12	1.333		1,350	59		1,409	1,575
Cherry, 1-3/4", 3'-0" wide x 6'-8" high		12	1.333		790	59		849	955
Double		12	1.333		1,575	59		1,634	1,825

08 16 Composite Doors

08 16 14 – French Doors

08 16 14.10 Exterior Doors With Glass Lites		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl
							Labor	Equipment		
0100	Mahogany, 1-3/4", 3'-0" wide x 8'-0" high	2 Corp	10	1.600	Ea.	700	70.50		770.50	
0105	Double		10	1.600		1,400	70.50		1,470.50	
0110	Fir, 1-3/4", 3'-0" wide x 8'-0" high		10	1.600		1,100	70.50		1,170.50	
0115	Double		10	1.600		2,200	70.50		2,270.50	
0120	Oak, 1-3/4", 3'-0" wide x 8'-0" high		10	1.600		1,825	70.50		1,895.50	
0125	Double	▼	10	1.600	▼	3,650	70.50		3,720.50	

08 17 Integrated Door Opening Assemblies

08 17 23 – Integrated Wood Door Opening Assemblies

08 17 23.10 Pre-Hung Doors

0010	PRE-HUNG DOORS									
0300	Exterior, wood, comb. storm & screen, 6'-9" x 2'-6" wide	2 Corp	15	1.067	Eo.	296	47		343	
0320	2'-8" wide		15	1.067		296	47		343	
0340	3'-0" wide	▼	15	1.067		305	47		352	
0360	For 7'-0" high door, add				▼	30			30	
1600	Entrance door, flush, birch, solid core									
1620	4-5/8" solid jamb, 1-3/4" x 6'-8" x 2'-8" wide	2 Corp	16	1	Eo.	289	44		333	
1640	3'-0" wide		16	1		330	44		374	
1642	5-5/8" jamb	▼	16	1		325	44		369	
1680	For 7'-0" high door, add				▼	25			25	
2000	Entrance door, colonial, 6 panel pine									
2020	4-5/8" solid jamb, 1-3/4" x 6'-8" x 2'-8" wide	2 Corp	16	1	Eo.	635	44		679	
2040	3'-0" wide	"	16	1		665	44		709	
2060	For 7'-0" high door, add					53.50			53.50	
2200	For 5-5/8" solid jamb, add				▼	41.50			41.50	
4000	Interior, passage door, 4-5/8" solid jamb									
4400	Lauan, flush, solid core, 1-3/8" x 6'-8" x 2'-6" wide	2 Corp	17	.941	Eo.	185	41.50		226.50	
4420	2'-8" wide		17	.941		185	41.50		226.50	
4440	3'-0" wide		16	1		200	44		244	
4600	Hollow core, 1-3/8" x 6'-8" x 2'-6" wide		17	.941		125	41.50		166.50	
4620	2'-8" wide		17	.941		124	41.50		165.50	
4640	3'-0" wide	▼	16	1		140	44		184	
4700	For 7'-0" high door, add					35			35	
5000	Birch, flush, solid core, 1-3/8" x 6'-8" x 2'-6" wide	2 Corp	17	.941		247	41.50		288.50	
5020	2'-8" wide		17	.941		200	41.50		241.50	
5040	3'-0" wide		16	1		277	44		321	
5200	Hollow core, 1-3/8" x 6'-8" x 2'-6" wide		17	.941		187	41.50		228.50	
5220	2'-8" wide		17	.941		161	41.50		202.50	
5240	3'-0" wide	▼	16	1		204	44		248	
5280	For 7'-0" high door, add					30			30	
5500	Hardboard paneled, 1-3/8" x 6'-8" x 2'-6" wide	2 Corp	17	.941		144	41.50		185.50	
5520	2'-8" wide		17	.941		152	41.50		193.50	
5540	3'-0" wide		16	1		149	44		193	
6000	Pine paneled, 1-3/8" x 6'-8" x 2'-6" wide		17	.941		254	41.50		295.50	
6020	2'-8" wide		17	.941		273	41.50		314.50	
6040	3'-0" wide	▼	16	1		281	44		325	
6500	For 5-5/8" solid jamb, odd					22.50			22.50	
6520	For split jamb, deduct				▼	24			24	

31 Access Doors and Panels

11 13 – Access Doors and Frames

13.10 Types of Framed Access Doors	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	Bare Costs Equipment	Total	Total Incl O&P
TYPES OF FRAMED ACCESS DOORS									
Fire rated door with lock									
Metal, 12" x 12"	1 Carp	10	.800	Ea.	165	35.50		200.50	237
18" x 18"		9	.889		220	39		259	305
24" x 24"		9	.889		325	39		364	420
24" x 36"		8	1		335	44		379	435
24" x 48"		8	1		430	44		474	545
36" x 36"		7.50	1.067		495	47		542	620
48" x 48"		7.50	1.067		635	47		682	770
Stainless steel, 12" x 12"		10	.800		282	35.50		317.50	365
18" x 18"		9	.889		410	39		449	510
24" x 24"		9	.889		500	39		539	610
24" x 36"	▼	8	1	▼	640	44		684	775
Flush door for finishing									
Metal 8" x 8"	1 Carp	10	.800	Ea.	35	35.50		70.50	93
12" x 12"	"	10	.800	"	40	35.50		75.50	98.50
Recessed door for acoustic tile									
Metal, 12" x 12"	1 Carp	4.50	1.778	Ea.	80	78.50		158.50	209
12" x 24"		4.50	1.778		90	78.50		168.50	220
24" x 24"		4	2		121	88		209	269
24" x 36"	▼	4	2	▼	170	88		258	325
Recessed door for drywall									
Metal 12" x 12"	1 Carp	6	1.333	Ea.	80	59		139	179
12" x 24"		5.50	1.455		114	64		178	224
24" x 36"	▼	5	1.600	▼	182	70.50		252.50	310
Standard door									
Metal, 8" x 8"	1 Carp	10	.800	Ea.	35	35.50		70.50	93
12" x 12"		10	.800		40	35.50		75.50	98.50
18" x 18"		9	.889		62	39		101	129
24" x 24"		9	.889		75	39		114	143
24" x 36"		8	1		115	44		159	195
36" x 36"		8	1		140	44		184	222
Stainless steel, 8" x 8"		10	.800		80	35.50		115.50	143
12" x 12"		10	.800		107	35.50		142.50	173
18" x 18"		9	.889		198	39		237	279
24" x 24"	▼	9	.889	▼	260	39		299	345
Ceiling hatches, 2'-6" x 2'-6", swing up, single leaf, st fr & cover	G-3	11	2.909		580	127		707	835
Aluminum cover	"	11	2.909	▼	560	127		687	810

11 13.20 Bulkhead/Cellar Doors

BULKHEAD/CELLAR DOORS									
Steel, not incl. sides, 44" x 62"	1 Carp	5.50	1.455	Ea.	560	64		624	715
52" x 73"		5.10	1.569		770	69		839	950
With sides and foundation plates, 57" x 45" x 24"		4.70	1.702		810	75		885	1,000
42" x 49" x 51"	▼	4.30	1.860	▼	915	82		997	1,125

11 13.30 Commercial Floor Doors

COMMERCIAL FLOOR DOORS									
Aluminum tile, steel frame, one leaf, 2' x 2' apng.	2 Sswk	3.50	4.571	Opng.	800	226		1,026	1,275
3'-6" x 3'-6" opening		3.50	4.571		1,600	226		1,826	2,150
Double leaf, 4' x 4' opening		3	5.333		1,675	263		1,938	2,325
5' x 5' opening	▼	3	5.333	▼	3,000	263		3,263	3,775

08 31 Access Doors and Panels

08 31 13 – Access Doors and Frames

08 31 13.35 Industrial Floor Doors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	T Inc
							Labor	Equipment		
0010	INDUSTRIAL FLOOR DOORS									
0020	Steel 300 psf L.L., single leaf, 2' x 2', 175#	2 Sswk	6	2.667	Opng.	760	132		892	
0050	3' x 3' opening, 300#		5.50	2.909		1,075	144		1,219	
0300	Double leaf, 4' x 4' opening, 455#		5	3.200		1,900	158		2,058	
0350	5' x 5' opening, 645#		4.50	3.556		2,750	175		2,925	
1000	Aluminum, 300 psf L.L., single leaf, 2' x 2', 60#		6	2.667		750	132		882	
1050	3' x 3' opening, 100#		5.50	2.909		1,300	144		1,444	
1500	Double leaf, 4' x 4' opening, 160#		5	3.200		2,100	158		2,258	
1550	5' x 5' opening, 235#		4.50	3.556		2,800	175		2,975	
2000	Aluminum, 150 psf L.L., single leaf, 2' x 2', 60#		6	2.667		700	132		832	
2050	3' x 3' opening, 95#		5.50	2.909		1,000	144		1,144	
2500	Double leaf, 4' x 4' opening, 150#		5	3.200		1,450	158		1,608	
2550	5' x 5' opening, 230#	▼	4.50	3.556	▼	1,950	175		2,125	
08 31 13.40 Kennel Doors										
0010	KENNEL DOORS									
0020	2 way, swinging type, 13" x 19" opening	2 Corp	11	1.455	Opng.	90	64		154	
0100	17" x 29" opening		11	1.455		110	64		174	
0200	9" x 9" opening, electronic with accessories	▼	11	1.455	▼	144	64		208	

08 32 Sliding Glass Doors

08 32 13 – Sliding Aluminum-Framed Glass Doors

08 32 13.10 Sliding Aluminum Doors										
0010	SLIDING ALUMINUM DOORS									
0350	Aluminum, 5/8" tempered insulated glass, 6' wide									
0400	Premium	2 Corp	4	4	Eq.	1,575	176		1,751	
0450	Economy		4	4		885	176		1,061	
0500	8' wide, premium		3	5.333		1,650	235		1,885	
0550	Economy		3	5.333		1,425	235		1,660	
0600	12' wide, premium		2.50	6.400		2,975	282		3,257	
0650	Economy		2.50	6.400		1,375	282		1,657	
4000	Aluminum, baked on enamel, temp glass, 6'-8" x 10'-0" wide		4	4		1,050	176		1,226	
4020	Insulating glass, 6'-8" x 6'-0" wide		4	4		915	176		1,091	
4040	8'-0" wide		3	5.333		1,075	235		1,310	
4060	10'-0" wide		2	8		1,325	355		1,680	
4080	Anodized, temp glass, 6'-8" x 6'-0" wide		4	4		455	176		631	
4100	8'-0" wide		3	5.333		575	235		810	
4120	10'-0" wide		2	8		645	355		1,000	
4200	Vinyl clad, anodized, temp glass, 6'-8" x 6'-0" wide		4	4		420	176		596	
4240	8'-0" wide		3	5.333		585	235		820	
4260	10'-0" wide		2	8		635	355		990	
4280	Insulating glass, 6'-8" x 6'-0" wide		4	4		1,125	176		1,301	
4300	8'-0" wide		3	5.333		935	235		1,170	
4320	10'-0" wide	▼	4	4	▼	1,675	176		1,851	

08 32 19 – Sliding Wood-Framed Glass Doors

08 32 19.15 Sliding Glass Vinyl-Clad Wood Doors										
0010	SLIDING GLASS VINYL-CLAD WOOD DOORS									
0020	Gloss, sliding vinyl clad, insul. glass, 6'-0" x 6'-8"	G	2 Corp	4	4	Eq.	1,500	176	1,676	
0025	6'-0" x 6'-10" high	G		4	4	Opng.	1,650	176	1,826	
0030	6'-0" x 8'-0" high	G		4	4	Eq.	1,975	176	2,151	
0050	5'-0" x 6'-8" high	G	▼	4	4	"	1,500	176	1,676	

32 Sliding Glass Doors

32.19 - Sliding Wood-Framed Glass Doors

32.19.15 Sliding Glass Vinyl-Clad Wood Doors

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bore Costs Labor	Equipment	Total	Total Incl O&P
8'-0" x 6'-10" high	G 2 Corp	4	4	Opng.	2,025	176		2,201	2,500
4 leaf, 9'-0" x 6'-10" high	G	3	5.333		3,250	235		3,485	3,925
12'-0" x 6'-10" high	G	3	5.333		3,875	235		4,110	4,625

33 Coiling Doors and Grilles

33.13 - Coiling Counter Doors

33.13.10 Counter Doors, Coiling Type

COUNTER DOORS, COILING TYPE

Manual, incl. frm and hdwe, galv. stl., 4' roll-up, 6' long	2 Corp	2	8	Opng.	1,175	355		1,530	1,850
Galvanized steel, UL label		1.80	8.889		1,225	390		1,615	1,950
Stainless steel, 4' high roll-up, 6' long		2	8		2,100	355		2,455	2,850
10' long		1.80	8.889		2,500	390		2,890	3,350
Aluminum, 4' high, 4' long		2.20	7.273		1,375	320		1,695	2,000
6' long		2	8		1,500	355		1,855	2,200
8' long		1.90	8.421		1,725	370		2,095	2,475
10' long		1.80	8.889		1,825	390		2,215	2,600
14' long		1.40	11.429		2,575	505		3,080	3,600
6' high, 4' long		2	8		1,550	355		1,905	2,250
6' long		1.60	10		1,600	440		2,040	2,425
10' long		1.40	11.429		2,100	505		2,605	3,100

33.16 - Coiling Counter Grilles

33.16.10 Coiling Grilles

COILING GRILLES

Aluminum, manual, incl. frame, mill finish									
Top coiling, 4' high, 4' long	2 Sswk	3.20	5	Opng.	1,500	247		1,747	2,100
6' long		3.20	5		1,750	247		1,997	2,375
8' long		2.40	6.667		1,950	330		2,280	2,750
12' long		2.40	6.667		2,375	330		2,705	3,200
16' long		1.60	10		2,525	495		3,020	3,650
6' high, 4' long		3.20	5		1,750	247		1,997	2,375
6' long		3.20	5		1,750	247		1,997	2,375
8' long		2.40	6.667		1,750	330		2,080	2,525
12' long		1.60	10		2,300	495		2,795	3,425
16' long		1.20	13.333		2,750	660		3,410	4,200
Side coiling, 8' high, 12' long		.60	26.667		2,300	1,325		3,625	4,875
18' long		.50	32		4,025	1,575		5,600	7,250
24' long		.40	40		3,675	1,975		5,650	7,575
12' high, 12' long		.50	32		3,350	1,575		4,925	6,500
18' long		.40	40		4,950	1,975		6,925	8,950
24' long		.28	57.143		6,625	2,825		9,450	12,300

33.23 - Overhead Coiling Doors

33.23.10 Rolling Service Doors

ROLLING SERVICE DOORS Steel, manual, 20 ga., incl. hardware

8' x 8' high	2 Sswk	1.60	10	Eq.	1,100	495		1,595	2,075
10' x 10' high		1.40	11.429		1,825	565		2,390	3,000
20' x 10' high		1	16		3,050	790		3,840	4,750
12' x 12' high		1.20	13.333		1,850	660		2,510	3,200
20' x 12' high		.90	17.778		2,100	875		2,975	3,875
14' x 14' high		.80	20		3,000	985		3,985	5,075
20' x 16' high		.60	26.667		3,450	1,325		4,775	6,150

08 33 Coiling Doors and Grilles

08 33 23 – Overhead Coiling Doors

08 33 23.10 Rolling Service Doors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Unit
							Labor	Equipment		
0700	10' x 20' high	2 Sswk	.50	32	Eq.	2,450	1,575		4,025	5.38
1000	12' x 12', crank operated, crank on door side		.80	20		1,650	985		2,635	3.48
1100	Crank thru wall		.70	22.857		1,900	1,125		3,025	4.12
1300	For vision panel, add					330			330	.43
1400	For 22 ga., deduct				S.F.	1.30			1.30	.01
1600	3' x 7' pass door within rolling steel door, new construction				Eq.	1,775			1,775	1.97
1700	Existing construction	2 Sswk	2	8		1,900	395		2,295	2.47
2000	Class A fire doors, manual, 20 ga., 8' x 8' high		1.40	11.429		1,475	565		2,040	2.47
2100	10' x 10' high		1.10	14.545		2,025	720		2,745	3.58
2200	20' x 10' high		.80	20		4,125	985		5,110	6.32
2300	12' x 12' high		1	16		3,175	790		3,965	4.95
2400	20' x 12' high		.80	20		4,475	985		5,460	6.70
2500	14' x 14' high		.60	26.667		3,475	1,325		4,800	6.11
2600	20' x 16' high		.50	32		5,625	1,575		7,200	9.00
2700	10' x 20' high		.40	40		4,350	1,975		6,325	8.35
3000	For 18 ga. doors, add				S.F.	1.45			1.45	.01
3300	For enamel finish, add				"	1.70			1.70	.01
3600	For safety edge bottom bar, pneumatic, add				L.F.	21			21	.01
3700	Electric, add					39.50			39.50	.01
4000	For weatherstripping, extruded rubber, joints, add					13.40			13.40	.01
4100	Hood, add					8.25			8.25	.01
4200	Sill, add					4.73			4.73	.01
4500	Motor operators, to 14' x 14' opening	2 Sswk	5	3.200	Eq.	1,050	158		1,208	1.45
4600	Over 14' x 14', jack shaft type	"	5	3.200		1,100	158		1,258	1.50
4700	For fire door, additional fusible link, add					26			26	.01

08 34 Special Function Doors

08 34 13 – Cold Storage Doors

08 34 13.10 Doors for Cold Area Storage

DOORS FOR COLD AREA STORAGE										
0010	Single, 20 ga. galvanized steel									
0020										
0300	Horizontal sliding, 5' x 7', manual operation, 3.5" thick	2 Carp	2	8	Eq.	3,200	355		3,555	4.58
0400	4" thick		2	8		3,225	355		3,580	4.58
0500	6" thick		2	8		3,400	355		3,755	4.78
0800	5' x 7', power operation, 2" thick		1.90	8.421		5,525	370		5,895	7.48
0900	4" thick		1.90	8.421		5,650	370		6,020	7.65
1000	6" thick		1.90	8.421		6,450	370		6,820	8.72
1300	9' x 10', manual operation, 2" insulation		1.70	9.412		4,500	415		4,915	6.25
1400	4" insulation		1.70	9.412		4,600	415		5,015	6.35
1500	6" insulation		1.70	9.412		5,550	415		5,965	7.55
1800	Power operation, 2" insulation		1.60	10		7,625	440		8,065	10.28
1900	4" insulation		1.60	10		7,850	440		8,290	10.58
2000	6" insulation		1.70	9.412		8,850	415		9,265	11.78
2300	For stainless steel face, add					25%				
3000	Hinged, lightweight, 3' x 7'-0", 2" thick	2 Carp	2	8	Eq.	1,400	355		1,755	2.23
3050	4" thick		1.90	8.421		1,750	370		2,120	2.69
3300	Aluminum doors, 3' x 7'-0", 4" thick		1.90	8.421		1,325	370		1,695	2.15
3350	6" thick		1.40	11.429		2,325	505		2,830	3.59
3600	Stainless steel, 3' x 7'-0", 4" thick		1.90	8.421		1,725	370		2,095	2.67
3650	6" thick		1.40	11.429		2,925	505		3,430	4.35
3900	Painted, 3' x 7'-0", 4" thick		1.90	8.421		1,250	370		1,620	2.07

34 Special Function Doors

4 13 – Cold Storage Doors

13.10 Doors for Cold Area Storage	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
6" thick	2 Carp	1.40	11.429	Ea.	2,325	505		2,830	3,350
Bi-parting, electric operated									
6' x 8' opening, galv. faces, 4" thick for cooler	2 Carp	.80	20	Opng.	7,200	880		8,080	9,275
For freezer, 4" thick		.80	20		7,950	880		8,830	10,100
For door buck framing and door protection, add		2.50	6.400		635	282		917	1,125
Galvanized batten door, galvanized hinges, 4' x 7'		2	8		1,800	355		2,155	2,525
6' x 8'		1.80	8.889		2,450	390		2,840	3,300
Fire door, 3 hr., 6' x 8', single slide		.80	20		8,275	880		9,155	10,500
Double, bi-parting	▼	.70	22.857	▼	12,200	1,000		13,200	15,000

4 16 – Hangar Doors

16.10 Aircraft Hangar Doors	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
AIRCRAFT HANGAR DOORS									
Bi-fold, ovhd., 20 PSF wind load, incl. elec. oper.									
12' high x 40'	2 Sswk	240	.067	S.F.	16	3.29		19.29	23.50
16' high x 60'		230	.070		19.20	3.43		22.63	27
20' high x 80'	▼	220	.073	▼	21	3.59		24.59	29.50

4 34 36 – Darkroom Doors

36.10 Various Types of Darkroom Doors	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
VARIOUS TYPES OF DARKROOM DOORS									
Revolving, standard, 2 way, 36" diameter	2 Carp	3.10	5.161	Opng.	2,250	228		2,478	2,825
41" diameter		3.10	5.161		2,650	228		2,878	3,275
3 way, 51" diameter		1.40	11.429		3,075	505		3,580	4,150
4 way, 49" diameter		1.40	11.429		3,625	505		4,130	4,775
Hinged safety, 2 way, 41" diameter		2.30	6.957		2,825	305		3,130	3,600
3 way, 51" diameter		1.40	11.429		3,625	505		4,130	4,775
Pop out safety, 2 way, 41" diameter		3.10	5.161		3,600	228		3,828	4,300
3 way, 51" diameter		1.40	11.429		3,550	505		4,055	4,675
Wheelchair-type, pop out, 51" diameter	♿	1.40	11.429		3,525	505		4,030	4,650
72" diameter	▼	.90	17.778	▼	7,225	785		8,010	9,150
For complete darkrooms, see Section 13 21 53.50									

4 53 53 – Security Doors and Frames

53.20 Steel Door	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
STEEL DOOR with ballistic core and welded frame both 14 gauge									
Flush, UL 752 Level 3, 1-3/4", 3'-0" x 6'-8"	2 Carp	1.50	10.667	Opng.	2,200	470		2,670	3,150
1-3/4", 3'-6" x 6'-8"		1.50	10.667		2,300	470		2,770	3,250
1-3/4", 4'-0" x 6'-8"		1.20	13.333		2,500	590		3,090	3,650
UL 752 Level 8, 1-3/4", 3'-0" x 6'-8"		1.50	10.667		9,600	470		10,070	11,300
1-3/4", 3'-6" x 6'-8"		1.50	10.667		9,800	470		10,270	11,500
1-3/4", 4'-0" x 6'-8"		1.20	13.333		11,100	590		11,690	13,100
UL 752 Level 3, 1-3/4", 3'-0" x 7'-0"		1.50	10.667		2,225	470		2,695	3,175
1-3/4", 3'-6" x 7'-0"		1.50	10.667		2,325	470		2,795	3,300
1-3/4", 4'-0" x 7'-0"		1.20	13.333		2,525	590		3,115	3,675
UL 752 Level 8, 1-3/4", 3'-0" x 7'-0"		1.50	10.667		9,700	470		10,170	11,400
1-3/4", 3'-6" x 7'-0"		1.50	10.667		9,800	470		10,270	11,500
1-3/4", 4'-0" x 7'-0"		1.20	13.333		11,200	590		11,790	13,300
Safe Room sliding door and hardware, 1-3/4", 3'-0" x 7'-0" UL 752 Level 3		.50	32		22,900	1,400		24,300	27,400
Safe Room swinging door and hardware, 1-3/4", 3'-0" x 7'-0" UL 752 Level 3	▼	.50	32	▼	27,500	1,400		28,900	32,500

4 53.30 Wood Ballistic Doors

WOOD BALLISTIC DOORS with frames and hardware	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Wood, 1-3/4", 3'-0" x 7'-0" UL 752 Level 3	2 Carp	1.50	10.667	Opng.	2,125	470		2,595	3,050

08 34 Special Function Doors

08 34 56 – Security Gates

08 34 56.10 Gates		Daily Crew	Labor Output	Hours	Unit	Material	2012 Bare Costs		Total	
							Labor	Equipment		
0010	GATES									
0015	Gates include mounting hardware									
0500	Wood, security gate, driveway, dual, 10' wide	H-4	.80	25	Opng.	3,900	1,025		4,925	
0505	12' wide		.80	25		4,300	1,025		5,325	
0510	15' wide		.80	25		5,100	1,025		6,125	
0600	Steel, security gate, driveway, single, 10' wide		.80	25		2,150	1,025		3,175	
0605	12' wide		.80	25		2,225	1,025		3,250	
0620	Steel, security gate, driveway, dual, 12' wide		.80	25		2,050	1,025		3,075	
0625	14' wide		.80	25		2,200	1,025		3,225	
0630	16' wide		.80	25		2,525	1,025		3,550	
0700	Aluminum, security gate, driveway, dual, 10' wide		.80	25		2,200	1,025		3,225	
0705	12' wide		.80	25		2,600	1,025		3,625	
0710	16' wide	▼	.80	25	▼	3,450	1,025		4,475	
1000	Security gate, driveway, opener 12 VDC				Eq.	700			700	
1010	Wireless					1,700			1,700	
1020	Security gate, driveway, opener 24 VDC					1,100			1,100	
1030	Wireless					1,300			1,300	
1040	Security gate, driveway, opener 12 VDC, solar panel 10 watt	1 Elec	2	4		200	206		406	
1050	20 watt	"	2	4	▼	320	206		526	

08 34 59 – Vault Doors and Day Gates

08 34 59.10 Secure Storage Doors										
0010	SECURE STORAGE DOORS									
0020	Door and frame, 32" x 78", clear opening									
0100	1 hour test, 32" door, weighs 750 lb.	2 Sswk	1.50	10.667	Opng.	3,075	525		3,600	
0200	2 hour test, 32" door, weighs 950 lb.		1.30	12.308		3,300	605		3,905	
0250	40" door, weighs 1130 lb.		1	16		3,675	790		4,465	
0300	4 hour test, 32" door, weighs 1025 lb.		1.20	13.333		3,550	660		4,210	
0350	40" door, weighs 1140 lb.	▼	.90	17.778		3,900	875		4,775	
0500	For stainless steel front, including frame, add to above					1,900			1,900	
0550	Back, add				▼	1,900			1,900	
0600	For time lock, two movement, add	1 Elec	2	4	Eq.	2,250	206		2,456	
0650	Three movement, add	"	2	4		2,200	206		2,406	
0800	Day gate, pointed, steel, 32" wide	2 Sswk	1.50	10.667		1,850	525		2,375	
0850	40" wide		1.40	11.429		2,050	565		2,615	
0900	Aluminum, 32" wide		1.50	10.667		3,100	525		3,625	
0950	40" wide	▼	1.40	11.429	▼	3,300	565		3,865	
2050	Security vault door, class I, 3' wide, 3 1/2" thick	E-24	.19	166	Opng.	15,300	8,100	3,625	27,025	3
2100	Class II, 3' wide, 7" thick		.19	166		18,200	8,100	3,625	29,925	3
2150	Class III, 9R, 3' wide, 10" thick, minimum		.13	250	▼	22,800	12,200	5,450	40,450	5
2160	Class V, type 1, 40" door		2.48	12.903	Eq.	6,800	630	281	7,711	
2170	Class V, type 2, 40" door	▼	2.48	12.903		6,775	630	281	7,686	
2180	Day gate for class V vault	2 Sswk	2	8	▼	1,825	395		2,220	

08 34 63 – Detention Doors and Frames

08 34 63.13 Steel Detention Doors and Frames										
0010	STEEL DETENTION DOORS AND FRAMES									
0500	Rolling cell door, bar front, 7/8" bars, 4" O.C., 7' H, 5' W, with hardware	G	E-4	2	16	Eq.	5,175	800	61	6,036
0550	Actuator for rolling cell door, bar front		2 Sskw	2	8		4,200	365		4,565
1000	Doors & frames, 3' x 7', complete, with hardware, single plate		E-4	4	8		4,525	400	30.50	4,955.50
1650	Double plate		"	4	8	▼	5,550	400	30.50	5,980.50

34 Special Function Doors

34 73 – Sound Control Door Assemblies

34 73.10 Acoustical Doors

	Crew	Doily Output	Labor- Hours	Unit	Material	2012 Bare Costs Labor Equipment	Total	Total Ind O&P
ACOUSTICAL DOORS								
Including framed seals, 3' x 7', wood, 27 STC rating	2 Carp	1.50	10.667	Ea.	950	470	1,420	1,775
Steel, 40 STC rating		1.50	10.667		3,000	470	3,470	4,025
45 STC rating		1.50	10.667		3,500	470	3,970	4,575
48 STC rating		1.50	10.667		4,100	470	4,570	5,225
52 STC rating		1.50	10.667		4,600	470	5,070	5,775

36 Panel Doors

36 13 – Sectional Doors

36 13.10 Overhead Commercial Doors

OVERHEAD COMMERCIAL DOORS								
Stack, sectional, heavy duty, wood, 1-3/4" thick, 8' x 8' high	2 Carp	2	8	Ea.	840	355	1,195	1,475
10' x 10' high		1.80	8.889		1,200	390	1,590	1,925
12' x 12' high		1.50	10.667		1,750	470	2,220	2,650
Chain hoist, 14' x 14' high		1.30	12.308		2,700	545	3,245	3,800
12' x 16' high		1	16		2,650	705	3,355	4,000
20' x 8' high		1.30	12.270		2,425	540	2,965	3,475
20' x 16' high		.65	24.615		4,875	1,075	5,950	7,050
Center mullion openings, 8' high		4	4		1,200	176	1,376	1,600
20' high		2	8		2,000	355	2,355	2,750
For medium duty custom door, deduct					5%	5%		
For medium duty stack doors, deduct					10%	5%		
Fiberglass and aluminum, heavy duty, sectional, 12' x 12' high	2 Carp	1.50	10.667	Ea.	2,675	470	3,145	3,650
Chain hoist, 20' x 20' high		.50	32		6,575	1,400	7,975	9,425
Steel, 24 ga. sectional, manual, 8' x 8' high		2	8		830	355	1,185	1,450
10' x 10' high		1.80	8.889		1,050	390	1,440	1,750
12' x 12' high		1.50	10.667		1,275	470	1,745	2,125
Chain hoist, 20' x 14' high		.70	22.857		3,550	1,000	4,550	5,450
For 1-1/4" rigid insulation and 26 ga. galv. back panel, add				S.F.	4.50		4.50	4.95
For electric trolley operator, 1/3 H.P. to 12' x 12', add	1 Carp	2	4	Ea.	925	176	1,101	1,300
Over 12' x 12', 1/2 H.P., add	"	1	8	"	1,075	355	1,430	1,750

36 13.20 Residential Garage Doors

RESIDENTIAL GARAGE DOORS								
Hinged, wood, custom, double door, 9' x 7'	2 Carp	4	4	Ea.	700	176	876	1,050
16' x 7'		3	5.333		1,050	235	1,285	1,500
Overhead, sectional, incl. hardware, fiberglass, 9' x 7', standard		5.28	3.030		865	134	999	1,150
Deluxe		5.28	3.030		1,100	134	1,234	1,400
16' x 7', standard		6	2.667		1,550	118	1,668	1,875
Deluxe		6	2.667		2,100	118	2,218	2,475
Hardboard, 9' x 7', standard		8	2		580	88	668	775
Deluxe		8	2		800	88	888	1,025
16' x 7', standard		6	2.667		1,200	118	1,318	1,500
Deluxe		6	2.667		1,400	118	1,518	1,725
Metal, 9' x 7', standard		5.28	3.030		640	134	774	910
Deluxe		8	2		875	88	963	1,100
16' x 7', standard		3	5.333		775	235	1,010	1,225
Deluxe		6	2.667		1,375	118	1,493	1,675
Wood, 9' x 7', standard		8	2		900	88	988	1,125
Deluxe		8	2		2,100	88	2,188	2,425

08 36 Panel Doors

08 36 13 – Sectional Doors

08 36 13.20 Residential Garage Doors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. O&M
							Labor	Equipment		
1000	16' x 7', standard	2 Corp	6	2.667	Ea.	1,600	118		1,718	1,718
1020	Deluxe		6	2.667		2,975	118		3,093	3,093
1800	Door hardware, sectional	1 Corp	4	2		320	88		408	408
1810	Door tracks only		4	2		159	88		247	247
1820	One side only		7	1.143		110	50.50		160.50	160.50
3000	Swing-up, including hardware, fiberglass, 9' x 7', standard	2 Corp	8	2		980	88		1,068	1,068
3020	Deluxe		8	2		1,000	88		1,088	1,088
3100	16' x 7', standard		6	2.667		1,225	118		1,343	1,343
3120	Deluxe		6	2.667		1,500	118		1,618	1,618
3200	Hardboard, 9' x 7', standard		8	2		500	88		588	588
3220	Deluxe		8	2		600	88		688	688
3300	16' x 7', standard		6	2.667		620	118		738	738
3320	Deluxe		6	2.667		800	118		918	918
3400	Metal, 9' x 7', standard		8	2		420	88		508	508
3420	Deluxe		8	2		950	88		1,038	1,038
3500	16' x 7', standard		6	2.667		685	118		803	803
3520	Deluxe		6	2.667		1,000	118		1,118	1,118
3600	Wood, 9' x 7', standard		8	2		600	88		688	688
3620	Deluxe		8	2		1,050	88		1,138	1,138
3700	16' x 7', standard		6	2.667		800	118		918	918
3720	Deluxe		6	2.667		2,000	118		2,118	2,118
3900	Door hardware only, swing up	1 Corp	4	2		163	88		251	251
3920	One side only		7	1.143		80	50.50		130.50	130.50
4000	For electric operator, economy, add		8	1		410	44		454	454
4100	Deluxe, including remote control		8	1		600	44		644	644
4500	For transmitter/receiver control, add to operator				Total	110			110	110
4600	Transmitters, additional				"	55			55	55

08 36 19 – Multi-Leaf Vertical Lift Doors

08 36 19.10 Sectional Vertical Lift Doors

SECTIONAL VERTICAL LIFT DOORS										
0010	Matonized, 14 ga. stl, incl., frm and ctrl pnl									
0050	16' x 16' high	L-10	.50	48	Ea.	21,500	2,375	1,225	25,100	29,100
0100	10' x 20' high		1.30	18.462		31,800	915	470	33,185	37,100
0120	15' x 20' high		1.30	18.462		39,400	915	470	40,785	45,400
0140	20' x 20' high		1	24		45,900	1,200	610	47,710	53,000
0160	25' x 20' high		1	24		52,500	1,200	610	54,310	60,000
0170	32' x 24' high		.75	32		46,400	1,575	815	48,790	54,500
0180	20' x 25' high		1	24		54,000	1,200	610	55,810	61,900
0200	25' x 25' high		.70	34.286		62,500	1,700	875	65,075	73,000
0220	25' x 30' high		.70	34.286		68,000	1,700	875	70,575	78,500
0240	30' x 30' high		.70	34.286		79,000	1,700	875	81,575	90,500
0260	35' x 30' high		.70	34.286		89,000	1,700	875	91,575	102,000

08 36 23 – Telescoping Vertical Lift Doors

08 36 23.10 Telescoping Steel Doors

TELESCOPING STEEL DOORS										
0010	Overhead, .03" thick, electric operated, 10' x 10'	E-3	.80	30	Ea.	14,600	1,500	152	16,252	18,900
2000	20' x 10'		.60	40		18,700	2,000	203	20,903	24,400
3000	20' x 16'		.40	60		19,000	3,000	305	22,305	26,800

38 Traffic Doors

38 13 - Flexible Strip Doors

38 13.10 Flexible Transparent Strip Doors

FLEXIBLE TRANSPARENT STRIP DOORS

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Incl O&P
12" strip width, 2/3 overlap	3 Shee	135	.178	SF Surf	7.55	9.25		16.80	22.50
Full overlap		115	.209		9.50	10.90		20.40	27
8" strip width, 1/2 overlap		140	.171		6.10	8.95		15.05	20.50
Full overlap	▼	120	.200	▼	7.70	10.45		18.15	24.50
Add for suspension system, header mount				L.F.	9			9	9.90
Wall mount				"	9.30			9.30	10.25

38 19 - Rigid Traffic Doors

38 19.20 Double Acting Swing Doors

DOUBLE ACTING SWING DOORS

.063" aluminum, 7'-0" high, 4'-0" wide	2 Corp	4.20	3.810	Pr.	2,100	168		2,268	2,550
6'-0" wide	▼	4	4	▼	2,200	176		2,376	2,700
6'-8" wide	▼	4	4	▼	2,400	176		2,576	2,925
Solid core wood, 3/4" thick, metal frame, stainless steel									
base plate, 7' high opening, 4' wide	2 Corp	4	4	Pr.	2,600	176		2,776	3,125
7' wide	"	3.80	4.211	"	2,800	186		2,986	3,350

38 19.30 Shock Absorbing Doors

SHOCK ABSORBING DOORS

Rigid, no frame, 1-1/2" thick, 5' x 7'	2 Sswk	1.90	8.421	Opng.	1,400	415		1,815	2,300
8' x 8'		1.80	8.889		2,000	440		2,440	2,975
Flexible, no frame, insulated, .16" thick, economy, 5' x 7'		2	8		1,750	395		2,145	2,625
Deluxe		1.90	8.421		2,625	415		3,040	3,625
8' x 8' opening, economy		2	8		2,750	395		3,145	3,725
Deluxe	▼	1.90	8.421	▼	3,500	415		3,915	4,600

41 Entrances and Storefronts

41 13 - Aluminum-Framed Entrances and Storefronts

41 13.20 Tube Framing

TUBE FRAMING, For window walls and store fronts, aluminum stock

Plain tube frame, mill finish, 1-3/4" x 1-3/4"	2 Glaz	103	.155	L.F.	9.45	6.65		16.10	20.50
1-3/4" x 4"		98	.163		12.95	7		19.95	25
1-3/4" x 4-1/2"		95	.168		14.60	7.20		21.80	27
2" x 6"		89	.180		22	7.70		29.70	35.50
4" x 4"		87	.184		25	7.85		32.85	39.50
4-1/2" x 4-1/2"		85	.188		26.50	8.05		34.55	41
Gloss bead		240	.067		2.80	2.85		5.65	7.40
Flush tube frame, mill finish, 1/4" gloss, 1-3/4" x 4", open header		80	.200		12.40	8.55		20.95	26.50
Open sill		82	.195		10.10	8.35		18.45	24
Closed back header		83	.193		17.75	8.25		26	32
Closed back sill	▼	85	.188	▼	16.95	8.05		25	31
Tube fmg, spondrel cover both sides, alum 1" wide	1 Sswk	85	.094	S.F.	96	4.64		100.64	113
Tube fmg, spondrel cover both sides, alum 2" wide	"	85	.094	"	37	4.64		41.64	49
Vertical mullion, one piece	2 Glaz	75	.213	L.F.	18.60	9.10		27.70	34.50
Two piece		73	.219		19.75	9.35		29.10	35.50
90° or 180° vertical corner post		75	.213		30	9.10		39.10	47
1-3/4" x 4-1/2", open header		80	.200		15.10	8.55		23.65	29.50
Open sill		82	.195		12.60	8.35		20.95	26.50
Closed back header		83	.193		18	8.25		26.25	32.50
Closed back sill		85	.188		17.75	8.05		25.80	31.50
Vertical mullion, one piece	▼	75	.213	▼	19.80	9.10		28.90	36

08 41 Entrances and Storefronts

08 41 13 – Aluminum-Framed Entrances and Storefronts

08 41 13.20 Tube Framing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Incl.
1650	Two piece	2 Glaz	73	.219	L.F.	21	9.35		30.35	
1700	90° or 180° vertical corner post		75	.213		21.50	9.10		30.60	
2000	Flush tube frame, mil fin., ins. glass w/thrml brk, 2" x 4-1/2", open header		75	.213		15.55	9.10		24.65	
2050	Open sill		77	.208		13.10	8.90		22	
2100	Closed back header		78	.205		14.70	8.75		23.45	
2150	Closed back sill		80	.200		15.75	8.55		24.30	
2200	Vertical mullion, one piece		70	.229		16.30	9.75		26.05	
2250	Two piece		68	.235		17.60	10.05		27.65	
2300	90° or 180° vertical corner post		70	.229		16.75	9.75		26.50	
5000	Flush tube frame, mil fin., thermal brk., 2-1/4" x 4-1/2", open header		74	.216		16.20	9.25		25.45	
5050	Open sill		75	.213		14.40	9.10		23.50	
5100	Vertical mullion, one piece		69	.232		16.75	9.90		26.65	
5150	Two piece		67	.239		20.50	10.20		30.70	
5200	90° or 180° vertical corner post		69	.232		18.05	9.90		27.95	
6980	Door stop (snap in)	▼	380	.042	▼	3.09	1.80		4.89	
7000	For joints, 90°, clip type, add				Eo.	24.50			24.50	
7050	Screw spline joint, add				▼	23			23	
7100	For joint other than 90°, add				▼	48			48	
8000	For bronze anodized aluminum, add					15%				
8020	For black finish, add					30%				
8050	For stainless steel materials, add					350%				
8100	For monumental grade, add					53%				
8150	For steel stiffener, add	2 Glaz	200	.080	L.F.	11	3.42		14.42	
8200	For 2 to 5 stories, add per story				Story		8%			

08 41 19 – Stainless-Steel-Framed Entrances and Storefronts

08 41 19.10 Stainless-Steel and Glass Entrance Unit

0010	STAINLESS-STEEL AND GLASS ENTRANCE UNIT, narrow stiles									
0020	3' x 7' opening, including hardware, minimum	2 Sswk	1.60	10	Opng.	6,475	495		6,970	7.97
0050	Average		1.40	11.429		6,875	565		7,440	8.54
0100	Maximum	▼	1.20	13.333		7,425	660		8,085	9.11
1000	For solid bronze entrance units, statuary finish, add					64%				
1100	Without statuary finish, add				▼	45%				
2000	Balanced doors, 3' x 7', economy	2 Sswk	.90	17.778	Eo.	8,675	875		9,550	11.11
2100	Premium	"	.70	22.857	"	14,900	1,125		16,025	18.44

08 41 26 – All-Glass Entrances and Storefronts

08 41 26.10 Window Walls Aluminum, Stock

0010	WINDOW WALLS ALUMINUM, STOCK, including glazing									
0020	Minimum	H-2	160	.150	S.F.	43.50	6.05		49.55	
0050	Average		140	.171	▼	60	6.90		66.90	
0100	Maximum	▼	110	.218	▼	165	8.75		173.75	
0500	For translucent sandwich wall systems, see Section 07 41 33.10									
0850	Cost of the above walls depends on material,									
0860	finish, repetition, and size of units.									
0870	The larger the opening, the lower the S.F. cost									
1200	Double glazed acoustical window wall for airports,									
1220	including 1" thick glass with 2" x 4-1/2" tube frame	H-2	40	.600	S.F.	113	24		137	

42 Entrances

42 26 – All-Glass Entrances

42 26.10 Swinging Glass Doors

SWINGING GLASS DOORS

Including hardware, 1/2" thick, tempered, 3' x 7' opening
6' x 7' opening

Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs Labor Equipment	Total	Total Inc O&P
2 Glaz	2	8	Opng.	2,175	340	2,515	2,900
"	1.40	11.429	"	4,200	490	4,690	5,375

42 29 – Automatic Entrances

42 29.23 Sliding Automatic Entrances

SLIDING AUTOMATIC ENTRANCES 12' x 7'-6" opng., 5' x 7' door, 2 way traffic

Mat or electronic activated, panic pushout, incl. operator & hardware,
not including glass or glazing

2 Glaz	.70	22.857	Opng.	8,200	975	9,175	10,500
--------	-----	--------	-------	-------	-----	-------	--------

42 33 – Revolving Door Entrances

42 33.10 Circular Rotating Entrance Doors

CIRCULAR ROTATING ENTRANCE DOORS, Aluminum

6'-10" to 7' high, stock units, minimum

Average

Maximum

Stainless steel

Solid bronze

For automatic controls, add

4 Sswk	.75	42.667	Opng.	20,100	2,100	22,200	25,900
	.60	53.333		24,200	2,625	26,825	31,300
	.45	71.111		41,500	3,500	45,000	52,000
	.30	105		39,400	5,225	44,625	52,500
	.15	213		46,400	10,500	56,900	70,000
2 Elec	2	8		14,600	410	15,010	16,700

42 36 – Balanced Door Entrances

42 36.10 Balanced Entrance Doors

BALANCED ENTRANCE DOORS

Hardware & frame, alum. & glass, 3' x 7', econ.
Premium

2 Sswk	.90	17.778	Eq.	6,300	875	7,175	8,500
"	.70	22.857	"	7,700	1,125	8,825	10,500

43 Storefronts

43 13 – Aluminum-Framed Storefronts

43 13.10 Aluminum-Framed Entrance Doors

ALUMINUM-FRAMED ENTRANCE DOORS

Standard hardware and glass stops but no glazing

Entrance door, 3' x 7' opening, clear anodized finish

Bronze finish

Block finish

6' x 7' opening, clear finish

Bronze finish

Block finish

With 3' high transom above, 3' x 7' opening, clear finish

Bronze finish

Block finish

3'-6" x 7'-0" opening, clear finish

Bronze finish

Block finish

6' x 7' opening, clear finish

Bronze finish

Block finish

2 Sswk	7	2.286	Opng.	365	113	478	600
	7	2.286		380	113	493	620
	7	2.286		425	113	538	670
	6	2.667		750	132	882	1,050
	6	2.667		785	132	917	1,100
	6	2.667		875	132	1,007	1,200
	5.50	2.909		445	144	589	745
	5.50	2.909		460	144	604	765
	5.50	2.909		495	144	639	800
	5.50	2.909		330	144	474	615
	5.50	2.909		335	144	479	625
	5.50	2.909		355	144	499	645
	5.50	2.909		560	144	704	870
	5.50	2.909		575	144	719	885
	5.50	2.909		635	144	779	950

43 13.20 Storefront Systems

STOREFRONT SYSTEMS, aluminum frame clear 3/8" plate glass

incl. 3' x 7' door with hardware (400 sq. ft. max. wall)

Wall height to 12' high, commercial grade

Institutional grade

Monumental grade

2 Glaz	150	.107	S.F.	20.50	4.56	25.06	29.50
	130	.123		25.50	5.25	30.75	36
	115	.139		38.50	5.95	44.45	51

08 43 Storefronts

08 43 13 – Aluminum-Framed Storefronts

08 43 13.20 Storefront Systems		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl.
							Labor	Equipment		
1000	6' x 7' door with hardware, commercial grade	2 Glaz	135	.119	S.F.	20.50	5.05		25.55	
1100	Institutional grade	↓	115	.139		28	5.95		33.95	
1200	Monumental grade	↓	100	.160		52	6.85		58.85	
1500	For bronze anodized finish, add					15%				
1600	For black anodized finish, add					36%				
1700	For stainless steel framing, add to monumental				↓	78%				

08 43 29 – Sliding Storefronts

08 43 29.10 Sliding Panels

0010	SLIDING PANELS									
0020	Mall fronts, aluminum & glass, 15' x 9' high		2 Glaz	1.30	12.308	Opng.	3,275	525	3,800	
0100	24' x 9' high			.70	22.857		4,650	975	5,625	
0200	48' x 9' high, with fixed panels		▼	.90	17.778		8,700	760	9,460	
0500	For bronze finish, add					▼	17%			

08 44 Curtain Wall and Glazed Assemblies

08 44 13 – Glazed Aluminum Curtain Walls

08 44 13.10 Glazed Curtain Walls

0010	GLAZED CURTAIN WALLS, aluminum, stock, including glazing									
0020	Minimum	H-1	205	.156	S.F.	34	7.20		41.20	
0050	Average, single glazed		195	.164		50	7.55		57.55	
0150	Average, double glazed		180	.178		64	8.55		72.20	
0200	Maximum	▼	160	.200	▼	172	9.20		181.20	

08 45 Translucent Wall and Roof Assemblies

08 45 10 – Translucent Roof Assemblies

08 45 10.10 Skyroofs

0010	SKYROOFS, translucent panels, 2-3/4" thick								
0020	Under 5000 S.F.	G-3	395	.081	SF Hor.	34	3.53		37.53
0100	Over 5000 S.F.		465	.069		31.50	3		34.50
0300	Continuous vaulted, semi-circular, to 8' wide, double glazed	G	145	.221		52.50	9.65		62.15
0400	Single glazed		160	.200		35.50	8.75		44.25
0600	To 20' wide, single glazed		175	.183		46	8		54
0700	Over 20' wide, single glazed		200	.160		45	7		52
0900	Matorized opening type, single glazed, 1/3 opening		145	.221		46	9.65		55.65
1000	Full opening	↓	130	.246	↓	52.50	10.75		63.25
1200	Pyramid type units, self-supporting, to 30' clear opening,								
1300	square or circular, single glazed, minimum	G-3	200	.160	SF Hor.	27	7		34
1310	Average		165	.194		37	8.45		45.45
1400	Maximum		130	.246		53	10.75		63.75
1500	Grid type, 4' to 10' modules, single glass glazed, minimum		200	.160		36	7		43
1550	Maximum		128	.250		56	10.90		66.90
1600	Prefarmed acrylic, minimum		300	.107		43.50	4.65		48.15
1650	Maximum	↓	175	.183	↓	59.50	8		67.50
1800	Skyroofs, dome type, self-supporting, to 100' clear opening, circular								
1900	Rise to span ratio = 0.20								
1920	Minimum	G-3	197	.162	SF Hor.	15.70	7.10		22.80
1950	Maximum		113	.283		52.50	12.35		64.85
2100	Rise to span ratio = 0.33, minimum		169	.189		31.50	8.25		39.75
2150	Maximum	↓	101	.317	↓	62	13.80		75.80

45 Translucent Wall and Roof Assemblies

45 10 – Translucent Roof Assemblies

5 10.10 Skyroofs	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
						Labor	Equipment		
Rise to span ratio = 0.50, minimum	G-3	148	.216	SF Hor.	47.50	9.45		56.95	67
Maximum		87	.368		69	16.05		85.05	101
Ridge units, continuous, to 8' wide, double	G	130	.246		120	10.75		130.75	148
Single	G	200	.160		83	7		90	102
Ridge and furrow units, over 4' O.C., double, minimum	G	200	.160		26	7		33	39
Maximum	G	120	.267		51	11.65		62.65	74
Single, minimum		214	.150		22	6.50		28.50	34.50
Maximum		153	.209		47	9.15		56.15	65.50
Rolling roof, translucent panels, flat roof, minimum		253	.126	S.F.	20	5.50		25.50	30.50
Maximum	G	160	.200		40	8.75		48.75	57.50
Lean-to skyroof, long span, double, minimum	G	197	.162		26.50	7.10		33.60	40.50
Maximum	G	101	.317		53.50	13.80		67.30	80
Single, minimum		321	.100		20.50	4.35		24.85	29
Maximum		160	.200		33.50	8.75		42.25	50

51 Metal Windows

51 13 – Aluminum Windows

51 13.10 Aluminum Sash

ALUMINUM SASH

Stock, grade C, glaze & trim not incl., casement	2 Sswk	200	.080	S.F.	38	3.95		41.95	49
Double hung		200	.080		38.50	3.95		42.45	49.50
Fixed casement		200	.080		17	3.95		20.95	26
Picture window		200	.080		18.05	3.95		22	27
Projected window		200	.080		35	3.95		38.95	45.50
Single hung		200	.080		16.20	3.95		20.15	25
Sliding		200	.080		21	3.95		24.95	30
Mullions for above, tubular		240	.067	L.F.	6.05	3.29		9.34	12.55
Custom aluminum sash, grade HC, glazing not included, minimum		200	.080	S.F.	39	3.95		42.95	50
Maximum		85	.188	"	51	9.30		60.30	72.50

51 13.20 Aluminum Windows

ALUMINUM WINDOWS, incl. frame and glazing, commercial grade

Stock units, casement, 3'-1" x 3'-2" opening	2 Sswk	10	1.600	Eq.	365	79		444	540
Add for storms					118			118	130
Projected, with screen, 3'-1" x 3'-2" opening	2 Sswk	10	1.600		345	79		424	520
Add for storms					115			115	127
4'-5" x 5'-3" opening	2 Sswk	8	2		390	98.50		488.50	605
Add for storms					123			123	135
Enamel finish windows, 3'-1" x 3'-2"	2 Sswk	10	1.600		350	79		429	525
4'-5" x 5'-3"		8	2		395	98.50		493.50	610
Single hung, 2' x 3' opening, enameled, standard glazed		10	1.600		203	79		282	365
Insulating glass		10	1.600		247	79		326	415
2'-8" x 6'-8" opening, standard glazed		8	2		360	98.50		458.50	570
Insulating glass		8	2		460	98.50		558.50	685
3'-4" x 5'-0" opening, standard glazed		9	1.778		294	87.50		381.50	480
Insulating glass		9	1.778		325	87.50		412.50	515
Awning type, 3' x 3' opening standard glass		14	1.143		415	56.50		471.50	555
Insulating glass		14	1.143		440	56.50		496.50	585
3' x 4' opening, standard glass		10	1.600		485	79		564	675
Insulating glass		10	1.600		560	79		639	755
3' x 5'-4" opening, standard glass		10	1.600		585	79		664	785
Insulating glass		10	1.600		690	79		769	900

08 51 Metal Windows

08 51 13 – Aluminum Windows

08 51 13.20 Aluminum Windows		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl
							Labor	Equipment		
3950	4' x 5'-4" opening, standard glass	2 Sswk	9	1.778	Ea.	640	87.50		727.50	860
3960	Insulating glass		9	1.778		770	87.50		857.50	1,000
4000	Sliding aluminum, 3' x 2' opening, standard glazed		10	1.600		215	79		294	360
4100	Insulating glass		10	1.600		230	79		309	380
4300	5' x 3' opening, standard glazed		9	1.778		330	87.50		417.50	510
4400	Insulating glass		9	1.778		385	87.50		472.50	570
4600	8' x 4' opening, standard glazed		6	2.667		345	132		477	610
4700	Insulating glass		6	2.667		560	132		692	850
5000	9' x 5' opening, standard glazed		4	4		525	197		722	920
5100	Insulating glass		4	4		840	197		1,037	1,270
5500	Sliding, with thermal barrier and screen, 6' x 4', 2 track		8	2		715	98.50		813.50	980
5700	4 track		8	2		900	98.50		998.50	1,170
6000	For above units with bronze finish, add					15%				
6200	For installation in concrete openings, add					8%				

08 51 23 – Steel Windows

08 51 23.10 Steel Sash

0010	STEEL SASH Custom units, glazing and trim not included	R085123-10								
0100	Casement, 100% vented	2 Sswk	200	.080	S.F.	64.50	3.95		68.45	710
0200	50% vented		200	.080		52.50	3.95		56.45	610
0300	Fixed		200	.080		28	3.95		31.95	330
1000	Projected, commercial, 40% vented		200	.080		50	3.95		53.95	570
1100	Intermediate, 50% vented		200	.080		57	3.95		60.95	640
1500	Industrial, horizontally pivoted		200	.080		52	3.95		55.95	590
1600	Fixed		200	.080		30.50	3.95		34.45	410
2000	Industrial security sash, 50% vented		200	.080		56.50	3.95		60.45	640
2100	Fixed		200	.080		46	3.95		49.95	530
2500	Picture window		200	.080		29.50	3.95		33.45	370
3000	Double hung		200	.080		57.50	3.95		61.45	650
5000	Mullions for above, open interior face		240	.067	L.F.	10.10	3.29		13.39	140
5100	With interior cover		240	.067	"	16.85	3.29		20.14	210

08 51 23.20 Steel Windows

0010	STEEL WINDOWS Stock, including frame, trim and insul. glass									
0020	See Section 13 34 19.50									
1000	Custom units, double hung, 2'-8" x 4'-6" opening	R085123-10	2 Sswk	12	1.333	Ea.	700	66	766	890
1100	2'-4" x 3'-9" opening			12	1.333		580	66	646	770
1500	Commercial projected, 3'-9" x 5'-5" opening			10	1.600		1,200	79	1,279	1,470
1600	6'-9" x 4'-1" opening			7	2.286		1,600	113	1,713	1,950
2000	Intermediate projected, 2'-9" x 4'-1" opening			12	1.333		680	66	746	870
2100	4'-1" x 5'-5" opening			10	1.600		1,400	79	1,479	1,670

08 51 66 – Metal Window Screens

08 51 66.10 Screens

0010	SCREENS									
0020	For metal sash, aluminum or bronze mesh, flat screen	2 Sswk	1200	.013	S.F.	4.20	.66		4.86	570
0500	Wicket screen, inside window		1000	.016		6.50	.79		7.29	860
0800	Security screen, aluminum frame with stainless steel cloth		1200	.013		23.50	.66		24.16	290
0900	Steel grate, painted, on steel frame		1600	.010		12.80	.49		13.29	160
1000	For solar louvers, add		160	.100		24	4.94		28.94	350
4000	See Section 05 58 23.90									

52 Wood Windows

52 10 - Plain Wood Windows

2 10.20 Awning Window	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
AWNING WINDOW , Including frame, screens and grilles									
Average quality, 34" x 22", double insulated glass	1 Carp	10	.800	Ea.	269	35.50		304.50	350
Low E glass		10	.800		267	35.50		302.50	350
40" x 28", double insulated glass		9	.889		310	39		349	405
Low E Glass		9	.889		340	39		379	430
48" x 36", double insulated glass		8	1		465	44		509	580
Low E glass		8	1		490	44		534	605
Impact windows, minimum, add					60%				
Impact windows, maximum, add					160%				

2 10.40 Casement Window

CASEMENT WINDOW , including frame, screen and grilles									
Avg. quality, bldrs. model, 2'-0" x 3'-0" H, dbl. insulated glass	G 1 Carp	10	.800	Ea.	284	35.50		319.50	370
Low E glass	G	10	.800		259	35.50		294.50	340
2'-0" x 4'-6" high, double insulated glass	G	9	.889		355	39		394	450
Low E glass	G	9	.889		370	39		409	465
Casement 4'-2" x 4'-2" double insulated glass	G	11	.727		875	32		907	1,000
4'-0" x 4'-0" Low E glass	G	11	.727		535	32		567	640
6'-4" x 5'-7" Low E glass	G	9	.889		1,125	39		1,164	1,275
2'-4" x 6'-0" high, double insulated glass	G	8	1		430	44		474	545
Low E glass	G	8	1		475	44		519	595
Vinyl clad, premium, double insulated glass, 2'-0" x 3'-0"	G	10	.800		266	35.50		301.50	350
2'-0" x 4'-0"	G	9	.889		310	39		349	400
2'-0" x 5'-0"	G	8	1		355	44		399	460
2'-0" x 6'-0"	G	8	1		375	44		419	480
3'-0" x 5'-0"		8	1		650	44		694	785
4'-0" x 3'-0"		8	1		715	44		759	860
4'-0" x 4'-0"	G	8	1		615	44		659	745
4'-8" x 4'-0"		8	1		675	44		719	815
4'-8" x 5'-0"		6	1.333		775	59		834	940
4'-8" x 6'-0"		6	1.333		870	59		929	1,050
6'-0" x 4'-0"		6	1.333		790	59		849	960
6'-0" x 5'-0"		6	1.333		885	59		944	1,075
5'-6" x 5'-6"	G 2 Carp	15	1.067		1,400	47		1,447	1,600
Bay, casement units, 8' x 5', w/screens, dbl. insul. glass		2.50	6.400	Opng.	1,600	282		1,882	2,175
Low E glass		2.50	6.400	"	1,675	282		1,957	2,275
For installation, add per leaf				Ea.		15%			
For multiple leaf units, deduct for stationary sash									
2' high				Ea.	23			23	25.50
4'-6" high					26			26	28.50
6' high					34.50			34.50	38
Impact windows, minimum, add					60%				
Impact windows, maximum, add					160%				

52 10.50 Double Hung

DOUBLE HUNG , Including frame, screens and grilles	R085216-10								
Avg. quality, bldrs. model, 2'-0" x 3'-0" high, low E insul. glass	G 1 Carp	10	.800	Ea.	209	35.50		244.50	284
3'-0" x 4'-0" high, double insulated glass	G	9	.889		270	39		309	360
4'-0" x 4'-6" high, low E insulated glass	G	8	1		315	44		359	415
Impact windows, minimum, add					60%				
Impact windows, maximum, add					160%				

52 10.55 Picture Window

PICTURE WINDOW , Including frame and grilles									
Average quality, bldrs. model, 3'-6" x 4'-0" high, dbl. insulated glass	2 Carp	12	1.333	Ea.	400	59		459	525

08 52 Wood Windows

08 52 10 – Plain Wood Windows

08 52 10.55 Picture Window		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. S&P
							Labor	Equipment		
0150	Low E glass	2 Carp	12	1.333	Ea.	410	59		469	540
0200	4'-0" x 4'-6" high, double insulated glass		11	1.455		500	64		564	635
0250	Low E glass		11	1.455		530	64		594	665
0300	5'-0" x 4'-0" high, double insulated glass		11	1.455		580	64		644	714
0350	Low E glass		11	1.455		605	64		669	739
0400	6'-0" x 4'-6" high, double insulated glass		10	1.600		625	70.50		695.50	800
0450	Low E glass		10	1.600		635	70.50		705.50	810

08 52 10.65 Wood Sash

0010	WOOD SASH , Including glazing but not trim									
0050	Custom, 5'-0" x 4'-0", 1" dbl. glazed, 3/16" thick lites	2 Carp	3.20	5	Ea.	226	221		447	530
0100	1/4" thick lites		5	3.200		241	141		382	460
0200	1" thick, triple glazed		5	3.200		405	141		546	640
0300	7'-0" x 4'-6" high, 1" double glazed, 3/16" thick lites		4.30	3.721		415	164		579	705
0400	1/4" thick lites		4.30	3.721		465	164		629	764
0500	1" thick, triple glazed		4.30	3.721		530	164		694	830
0600	8'-6" x 5'-0" high, 1" double glazed, 3/16" thick lites		3.50	4.571		555	202		757	920
0700	1/4" thick lites		3.50	4.571		605	202		807	975
0800	1" thick, triple glazed		3.50	4.571		615	202		817	985
0900	Window frames only, based on perimeter length				L.F.	3.95			3.95	
1200	Window sill, stock, per lineal foot					8.45			8.45	
1250	Casing, stock					3.24			3.24	

08 52 10.70 Sliding Windows

0010	SLIDING WINDOWS									
0100	Average quality, bldrs. model, 3'-0" x 3'-0" high, double insulated	G 1 Carp	10	.800	Ea.	280	35.50		315.50	344
0120	Low E glass	G	10	.800		305	35.50		340.50	369
0200	4'-0" x 3'-6" high, double insulated	G	9	.889		355	39		394	435
0220	Low E glass	G	9	.889		355	39		394	435
0300	6'-0" x 5'-0" high, double insulated	G	8	1		485	44		529	600
0320	Low E glass	G	8	1		525	44		569	640

08 52 13 – Metal-Clad Wood Windows

08 52 13.10 Awning Windows, Metal-Clad

0010	AWNING WINDOWS, METAL-CLAD									
2000	Metal clad, awning deluxe, double insulated glass, 34" x 22"	1 Carp	9	.889	Ea.	245	39		284	335
2050	36" x 25"		9	.889		272	39		311	360
2100	40" x 22"		9	.889		289	39		328	380
2150	40" x 30"		9	.889		340	39		379	440
2200	48" x 28"		8	1		345	44		389	440
2250	60" x 36"		8	1		370	44		414	470

08 52 13.20 Casement Windows, Metal-Clad

0010	CASEMENT WINDOWS, METAL-CLAD									
0100	Metal clad, deluxe, dbl. insul. glass, 2'-0" x 3'-0" high	G 1 Carp	10	.800	Ea.	279	35.50		314.50	350
0120	2'-0" x 4'-0" high	G	9	.889		315	39		354	400
0130	2'-0" x 5'-0" high	G	8	1		325	44		369	410
0140	2'-0" x 6'-0" high	G	8	1		365	44		409	450
0300	Metal clad, casement, bldrs mdl, 6'-0" x 4'-0", dbl. insltd gls, 3 panels	2 Carp	10	1.600		1,200	70.50		1,270.50	1,440
0310	9'-0" x 4'-0", 4 panels		8	2		1,550	88		1,638	1,810
0320	10'-0" x 5'-0", 5 panels		7	2.286		2,100	101		2,201	2,440
0330	12'-0" x 6'-0", 6 panels		6	2.667		2,700	118		2,818	3,110

08 52 13.30 Double-Hung Windows, Metal-clad

0010	DOUBLE-HUNG WINDOWS, METAL-CLAD									
0100	Metal clad, deluxe, dbl. insul. glass, 2'-6" x 3'-0" high	G 1 Carp	10	.800	Ea.	272	35.50		307.50	340

52 Wood Windows

52 13 - Metal-Clad Wood Windows

2 13.30 Double-Hung Windows, Metal-clad	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
3'-0" x 3'-6" high	1 Corp	10	.800	Ea.	315	35.50		350.50	400
3'-0" x 4'-0" high	G	9	.889		325	39		364	420
3'-0" x 4'-6" high	G	9	.889		345	39		384	440
3'-0" x 5'-0" high	G	8	1		370	44		414	480
3'-6" x 6'-0" high	G	8	1		450	44		494	565

2 13.35 Picture and Sliding Windows Metal-Clad

PICTURE AND SLIDING WINDOWS METAL-CLAD									
Metal clad, dlx picture, dbl. insul. glass, 4'-0" x 4'-0" high	2 Corp	12	1.333	Ea.	375	59		434	500
4'-0" x 6'-0" high		11	1.455		545	64		609	700
5'-0" x 6'-0" high		10	1.600		610	70.50		680.50	780
6'-0" x 6'-0" high		10	1.600		695	70.50		765.50	875
Metal clad, dlx sliding, double insulated glass, 3'-0" x 3'-0" high	G	1 Corp	10	.800	330	35.50		365.50	415
4'-0" x 3'-6" high	G	9	.889		400	39		439	500
5'-0" x 4'-0" high	G	9	.889		480	39		519	585
6'-0" x 5'-0" high	G	8	1		725	44		769	865

2 13.40 Bow and Bay Windows, Metal-Clad

BOW AND BAY WINDOWS, METAL-CLAD									
Metal clad, deluxe, dbl. insul. glass, 8'-0" x 5'-0" high, 4 panels	2 Corp	10	1.600	Ea.	1,675	70.50		1,745.50	1,925
10'-0" x 5'-0" high, 5 panels		8	2		1,800	88		1,888	2,100
10'-0" x 6'-0" high, 5 panels		7	2.286		2,100	101		2,201	2,475
12'-0" x 6'-0" high, 6 panels		6	2.667		2,925	118		3,043	3,400
Double hung, bldrs. model, bay, 8' x 4' high, dbl. insulated glass		10	1.600		1,325	70.50		1,395.50	1,550
Low E glass		10	1.600		1,425	70.50		1,495.50	1,675
9'-0" x 5'-0" high, double insulated glass		6	2.667		1,425	118		1,543	1,750
Low E glass		6	2.667		1,500	118		1,618	1,825
Metal clad, deluxe, dbl. insul. glass, 7'-0" x 4'-0" high		10	1.600		1,275	70.50		1,345.50	1,500
8'-0" x 4'-0" high		8	2		1,300	88		1,388	1,575
8'-0" x 5'-0" high		7	2.286		1,350	101		1,451	1,650
9'-0" x 5'-0" high		6	2.667		1,450	118		1,568	1,750

52 16 - Plastic-Clad Wood Windows

52 16.10 Bow Window

BOW WINDOW including frames, screens, and grilles									
End panels operable									
Bow type, casement, wood, bldrs mdl, 8' x 5' dbl. insul. glass, 4 panel	2 Corp	10	1.600	Ea.	1,500	70.50		1,570.50	1,750
Low E glass		10	1.600		1,325	70.50		1,395.50	1,550
10'-0" x 5'-0", double insulated glass, 6 panels		6	2.667		1,350	118		1,468	1,675
Low E glass, 6 panels		6	2.667		1,450	118		1,568	1,775
Vinyl clad, bldrs model, double insulated glass, 6'-0" x 4'-0", 3 panel		10	1.600		1,025	70.50		1,095.50	1,225
9'-0" x 4'-0", 4 panel		8	2		1,350	88		1,438	1,625
10'-0" x 6'-0", 5 panels		7	2.286		2,250	101		2,351	2,625
12'-0" x 6'-0", 6 panels		6	2.667		2,925	118		3,043	3,400
Bay window, 8' x 5', dbl. insul. glass		10	1.600		1,875	70.50		1,945.50	2,175
Low E glass		10	1.600		2,275	70.50		2,345.50	2,600
12'-0" x 6'-0", double insulated glass, 6 panels		6	2.667		2,350	118		2,468	2,750
Low E glass		6	2.667		2,350	118		2,468	2,775
6'-0" x 4'-0"		11	1.455		1,225	64		1,289	1,450
Vinyl clad, premium, double insulated glass, 8'-0" x 5'-0"		10	1.600		1,750	70.50		1,820.50	2,025
10'-0" x 5'-0"		8	2		2,275	88		2,363	2,650
10'-0" x 6'-0"		7	2.286		2,600	101		2,701	3,000
12'-0" x 6'-0"		6	2.667		3,200	118		3,318	3,700
Vinyl clad, premium, double insulated glass, 7'-0" x 4'-6"		10	1.600		1,375	70.50		1,445.50	1,600
8'-0" x 4'-6"		8	2		1,400	88		1,488	1,650

08 52 Wood Windows

08 52 16 - Plastic-Clad Wood Windows

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. O.
							Labor	Equipment		
08 52 16.10 Bow Window										
3380	8'-0" x 5'-0"	2 Carp	7	2.286	Ea.	1,450	101		1,551	
3420	9'-0" x 5'-0"	↓	6	2.667	↓	1,500	118		1,618	
08 52 16.15 Awning Window Vinyl-Clad										
0010	AWNING WINDOW VINYL-CLAD Including frames, screens, and grilles									
0240	Vinyl clad, 34" x 22"	1 Carp	10	.800	Ea.	262	35.50		297.50	
0280	36" x 28"		9	.889		305	39		344	
0300	36" x 36"		9	.889		340	39		379	
0340	40" x 22"		10	.800		287	35.50		322.50	
0360	48" x 28"		8	1		365	44		409	
0380	60" x 36"	↓	8	1	↓	515	44		559	
08 52 16.30 Palladian Windows										
0010	PALLADIAN WINDOWS									
0020	Vinyl clad, double insulated glass, including frame and grilles									
0040	3'-2" x 2'-6" high	2 Carp	11	1.455	Ea.	1,250	64		1,314	
0060	3'-2" x 4'-10"		11	1.455		1,750	64		1,814	
0080	3'-2" x 6'-4"		10	1.600		1,700	70.50		1,770.50	
0100	4'-0" x 4'-0"	↓	10	1.600		1,525	70.50		1,595.50	
0120	4'-0" x 5'-4"	3 Carp	10	2.400		1,875	106		1,981	
0140	4'-0" x 6'-0"		9	2.667		1,950	118		2,068	
0160	4'-0" x 7'-4"		9	2.667		2,125	118		2,243	
0180	5'-5" x 4'-10"		9	2.667		2,275	118		2,393	
0200	5'-5" x 6'-10"		9	2.667		2,575	118		2,693	
0220	5'-5" x 7'-9"		9	2.667		2,800	118		2,918	
0240	6'-0" x 7'-11"		8	3		3,475	132		3,607	
0260	8'-0" x 6'-0"	↓	8	3	↓	3,075	132		3,207	
08 52 16.35 Double-Hung Window										
0010	DOUBLE-HUNG WINDOW Including frames, screens, and grilles									
0300	Vinyl clad, premium, double insulated glass, 2'-6" x 3'-0"	G 1 Carp	10	.800	Ea.	300	35.50		335.50	
0305	2'-6" x 4'-0"	G	10	.800		355	35.50		390.50	
0400	3'-0" x 3'-6"	G	10	.800		330	35.50		365.50	
0500	3'-0" x 4'-0"	G	9	.889		390	39		429	
0600	3'-0" x 4'-6"	G	9	.889		405	39		444	
0700	3'-0" x 5'-0"	G	8	1		440	44		484	
0790	3'-4" x 5'-0"	G	8	1		445	44		489	
0800	3'-6" x 6'-0"	G	8	1		485	44		529	
0820	4'-0" x 5'-0"	G	7	1.143		550	50.50		600.50	
0830	4'-0" x 6'-0"	G	7	1.143	↓	685	50.50		735.50	
08 52 16.40 Transom Windows										
0010	TRANSOM WINDOWS									
1000	Vinyl clad, premium, dbl. insul. glass, 4'-0" x 4'-0"	2 Carp	12	1.333	Ea.	495	59		554	
1100	4'-0" x 6'-0"		11	1.455		935	64		999	
1200	5'-0" x 6'-0"		10	1.600		1,050	70.50		1,120.50	
1300	6'-0" x 6'-0"	↓	10	1.600	↓	1,050	70.50		1,120.50	
08 52 16.70 Vinyl Clad, Premium, Dbl. Insulated Glass										
0010	VINYL CLAD, PREMIUM, DBL. INSULATED GLASS									
1000	Sliding, 3'-0" x 3'-0"	G 1 Carp	10	.800	Ea.	605	35.50		640.50	
1050	4'-0" x 3'-6"	G	9	.889		685	39		724	
1100	5'-0" x 4'-0"	G	9	.889		900	39		939	
1150	6'-0" x 5'-0"	G	8	1	↓	1,125	44		1,169	

52 Wood Windows

52 50 - Window Accessories

2 50.10 Window Grille or Muntin	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
WINDOW GRILLE OR MUNTIN , snap in type									
Standard pattern interior grilles									
Wood, awning window, glass size 28" x 16" high	1 Carp	30	.267	Ea.	26.50	11.75		38.25	47
44" x 24" high		32	.250		37.50	11.05		48.55	58.50
Casement, glass size, 20" x 36" high		30	.267		30.50	11.75		42.25	51.50
20" x 56" high		32	.250		42	11.05		53.05	63
Double hung, glass size, 16" x 24" high		24	.333	Set	50	14.70		64.70	78
32" x 32" high		34	.235	"	131	10.40		141.40	160
Picture, glass size, 48" x 48" high		30	.267	Ea.	117	11.75		128.75	146
60" x 68" high		28	.286	"	180	12.60		192.60	217
Sliding, glass size, 14" x 36" high		24	.333	Set	34.50	14.70		49.20	60.50
36" x 36" high		22	.364	"	42.50	16.05		58.55	71

52 66 - Wood Window Screens

WOOD SCREENS									
Over 3 S.F., 3/4" frames	2 Carp	375	.043	S.F.	4.80	1.88		6.68	8.20
1-1/8" frames	"	375	.043	"	8.10	1.88		9.98	11.80

52 69 - Wood Storm Windows

STORM WINDOWS , aluminum residential									
Basement, mill finish, incl. fiberglass screen									
1'-10" x 1'-0" high	G 2 Carp	30	.533	Ea.	35	23.50		58.50	74.50
2'-9" x 1'-6" high	G "	30	.533	"	38	23.50		61.50	78
Double-hung, combination, storm & screen									
Average quality, clear anodic coating, 2'-0" x 3'-5" high	G 2 Carp	30	.533	Ea.	85	23.50		108.50	130
2'-6" x 5'-0" high	G	28	.571		113	25		138	163
4'-0" x 6'-0" high	G	25	.640		126	28		154	183
White painted, 2'-0" x 3'-5" high	G	30	.533		85	23.50		108.50	130
2'-6" x 5'-0" high	G	28	.571		90	25		115	138
4'-0" x 6'-0" high	G	25	.640		98	28		126	152
Mill finish, 2'-0" x 3'-5" high	G	30	.533		75	23.50		98.50	119
2'-6" x 5'-0" high	G	28	.571		85	25		110	133
4'-0" x 6'-8" high	G	25	.640		99	28		127	153

53 Plastic Windows

53 13 - Vinyl Windows

53 13.20 Vinyl Single Hung Windows

VINYL SINGLE HUNG WINDOWS , insulated glass									
Grids, low E, J fin, ext. jambs, 21" x 53"	G 2 Carp	18	.889	Ea.	198	39		237	279
21" x 57"	G	17	.941		195	41.50		236.50	279
21" x 65"	G	16	1		200	44		244	288
25" x 41"	G	20	.800		188	35.50		223.50	262
25" x 49"	G	18	.889		198	39		237	279
25" x 57"	G	17	.941		201	41.50		242.50	285
25" x 65"	G	16	1		207	44		251	296
29" x 41"	G	18	.889		192	39		231	272
29" x 53"	G	18	.889		202	39		241	283
29" x 57"	G	17	.941		206	41.50		247.50	291
29" x 65"	G	16	1		212	44		256	300

08 53 Plastic Windows

08 53 13 – Vinyl Windows

08 53 13.20 Vinyl Single Hung Windows			Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind. Cost
								Labor	Equipment		
0210	33" x 41"	G	2 Corp	20	.800	Ea.	198	35.50		233.50	
0220	33" x 53"	G		18	.889		209	39		248	
0230	33" x 57"	G		17	.941		212	41.50		253.50	
0240	33" x 65"	G		16	1		218	44		262	
0250	37" x 41"	G		20	.800		206	35.50		241.50	
0260	37" x 53"	G		18	.889		218	39		257	
0270	37" x 57"	G		17	.941		221	41.50		262.50	
0280	37" x 65"	G		16	1		232	44		276	

08 53 13.30 Vinyl Double Hung Windows

08 53 13.30 VINYL DOUBLE HUNG WINDOWS, insulated glass											
0010	Grids, low E, 1 fin, ext. jambs, 21" x 53"	G	2 Corp	18	.889	Ea.	215	39		254	
0100	21" x 37"	G		18	.889		197	39		236	
0102	21" x 41"	G		18	.889		201	39		240	
0106	21" x 49"	G		18	.889		221	39		260	
0110	21" x 57"	G		17	.941		218	41.50		259.50	
0120	21" x 65"	G		16	1		228	44		272	
0128	25" x 37"	G		20	.800		206	35.50		241.50	
0130	25" x 41"	G		20	.800		209	35.50		244.50	
0140	25" x 49"	G		18	.889		213	39		252	
0145	25" x 53"	G		18	.889		221	39		260	
0150	25" x 57"	G		17	.941		221	41.50		262.50	
0160	25" x 65"	G		16	1		231	44		275	
0162	25" x 69"	G		16	1		238	44		282	
0164	25" x 77"	G		16	1		248	44		292	
0168	29" x 37"	G		18	.889		211	39		250	
0170	29" x 41"	G		18	.889		214	39		253	
0172	29" x 49"	G		18	.889		221	39		260	
0180	29" x 53"	G		18	.889		225	39		264	
0190	29" x 57"	G		17	.941		229	41.50		270.50	
0200	29" x 65"	G		16	1		236	44		280	
0202	29" x 69"	G		16	1		243	44		287	
0205	29" x 77"	G		16	1		254	44		298	
0208	33" x 37"	G		20	.800		215	35.50		250.50	
0210	33" x 41"	G		20	.800		219	35.50		254.50	
0215	33" x 49"	G		20	.800		227	35.50		262.50	
0220	33" x 53"	G		18	.889		231	39		270	
0230	33" x 57"	G		17	.941		235	41.50		276.50	
0240	33" x 65"	G		16	1		239	44		283	
0242	33" x 69"	G		16	1		245	44		289	
0246	33" x 77"	G		16	1		251	44		295	
0250	37" x 41"	G		20	.800		223	35.50		258.50	
0255	37" x 49"	G		20	.800		231	35.50		266.50	
0260	37" x 53"	G		18	.889		239	39		278	
0270	37" x 57"	G		17	.941		243	41.50		284.50	
0280	37" x 65"	G		16	1		255	44		299	
0282	37" x 69"	G		16	1		262	44		306	
0286	37" x 77"	G		16	1		270	44		314	
0300	Solid vinyl, average quality, double insulated glass, 2'-0" x 3'-0"	G	1 Corp	10	.800		287	35.50		322.50	
0310	3'-0" x 4'-0"	G		9	.889		203	39		242	
0320	4'-0" x 4'-6"	G		8	1		305	44		349	
0330	Premium, double insulated glass, 2'-6" x 3'-0"	G		10	.800		239	35.50		274.50	
0340	3'-0" x 3'-6"	G		9	.889		263	39		302	

53 Plastic Windows

53 13 - Vinyl Windows

13.30 Vinyl Double Hung Windows		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
3'-0" x 4'-0"	G	1 Carp	9	.889	Ea.	288	39		327	375
3'-0" x 4'-6"	G		9	.889		295	39		334	385
3'-0" x 5'-0"	G		8	1		315	44		359	420
3'-6" x 6'-0"	G		8	1		355	44		399	465

13.40 Vinyl Casement Windows

VINYL CASEMENT WINDOWS, insulated glass

Grids, low E, J fin, extension jambs, screens

One lite, 21" x 41"

21" x 47"

21" x 53"

24" x 35"

24" x 41"

24" x 47"

24" x 53"

28" x 35"

28" x 41"

28" x 47"

28" x 53"

28" x 59"

Two lites, 33" x 35"

33" x 41"

33" x 47"

33" x 53"

33" x 59"

33" x 72"

41" x 41"

41" x 47"

41" x 53"

41" x 59"

41" x 72"

47" x 41"

47" x 47"

47" x 53"

47" x 59"

56" x 41"

56" x 47"

56" x 53"

56" x 59"

56" x 72"

Solid vinyl, premium, double insulated glass, 2'-0" x 3'-0" high

2'-0" x 4'-0" high

2'-0" x 5'-0" high

G	2 Carp	20	.800	Ea.	271	35.50		306.50	355
G		20	.800		294	35.50		329.50	380
G		20	.800		315	35.50		350.50	405
G		19	.842		263	37		300	345
G		19	.842		283	37		320	365
G		19	.842		305	37		342	390
G		19	.842		325	37		362	415
G		19	.842		278	37		315	360
G		19	.842		298	37		335	385
G		19	.842		320	37		357	405
G		19	.842		350	37		387	440
G		19	.842		350	37		387	440
G		18	.889		430	39		469	530
G		18	.889		455	39		494	565
G		18	.889		490	39		529	595
G		18	.889		520	39		559	630
G		18	.889		550	39		589	665
G		18	.889		570	39		609	685
G		18	.889		495	39		534	605
G		18	.889		530	39		569	640
G		17	.941		560	41.50		601.50	680
G		17	.941		590	41.50		631.50	710
G		17	.941		615	41.50		656.50	740
G		17	.941		500	41.50		541.50	615
G		17	.941		530	41.50		571.50	650
G		17	.941		560	41.50		601.50	685
G		17	.941		615	41.50		656.50	740
G		15	1.067		535	47		582	665
G		15	1.067		560	47		607	695
G		15	1.067		610	47		657	745
G		15	1.067		635	47		682	775
G		15	1.067		690	47		737	835
G	1 Carp	10	.800		259	35.50		294.50	340
G		9	.889		289	39		328	380
G		8	1		310	44		354	410

53 13.50 Vinyl Picture Windows

VINYL PICTURE WINDOWS, insulated glass

Grids, low E, J fin, ext. jambs, 33" x 47"

35" x 71"

41" x 47"

41" x 71"

47" x 47"

47" x 71"

53" x 47"

53" x 71"

2 Carp	12	1.333	Ea.	250	59		309	365
	12	1.333		335	59		394	460
	12	1.333		270	59		329	390
	12	1.333		350	59		409	475
	12	1.333		305	59		364	425
	11	1.455		380	64		444	520
	11	1.455		330	64		394	465
	11	1.455		345	64		409	480

08 53 Plastic Windows

08 53 13 – Vinyl Windows

08 53 13.50 Vinyl Picture Windows		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl.
							Labor	Equipment		
0180	59" x 47"	2 Carp	11	1.455	Ea.	370	64		434	
0190	59" x 71"		11	1.455		380	64		444	
0200	71" x 47"		10	1.600		390	70.50		460.50	
0210	71" x 71"		10	1.600		405	70.50		475.50	

08 54 Composite Windows

08 54 13 – Fiberglass Windows

08 54 13.10 Fiberglass Single Hung Windows

0010	FIBERGLASS SINGLE HUNG WINDOWS									
0100	Grids, low E, 18" x 24"	G	2 Carp	18	.889	Ea.	335	39		374
0110	18" x 40"	G		17	.941		340	41.50		381.50
0130	24" x 40"	G		20	.800		360	35.50		395.50
0230	36" x 36"	G		17	.941		370	41.50		411.50
0250	36" x 48"	G		20	.800		405	35.50		440.50
0260	36" x 60"	G		18	.889		445	39		484
0280	36" x 72"	G		16	1		470	44		514
0290	48" x 40"	G		16	1		470	44		514

08 56 Special Function Windows

08 56 63 – Detention Windows

08 56 63.13 Visitor Cubicle Windows

0010	VISITOR CUBICLE WINDOWS									
4000	Visitor cubicle, vision panel, no intercom		E-4	2	16	Ea.	3,150	800	61	4,011

08 62 Unit Skylights

08 62 13 – Domed Unit Skylights

08 62 13.20 Skylights

0010	SKYLIGHTS, Plastic domes, flush or curb mounted									
0300	Nominal size under 10 S.F., double	G	G-3	130	.246	S.F.	29.50	10.75		40.25
0400	Single			160	.200		26	8.75		34.75
0600	10 S.F. to 20 S.F., double	G		315	.102		25	4.43		29.43
0700	Single			395	.081		25	3.53		28.53
0900	20 S.F. to 30 S.F., double	G		395	.081		23.50	3.53		27.03
1000	Single			465	.069		19.25	3		22.25
1200	30 S.F. to 65 S.F., double	G		465	.069		24	3		27
1300	Single			610	.052		17.60	2.29		19.89
1500	For insulated 4" curbs, double, add						27%			
1600	Single, add						30%			
1800	For integral insulated 9" curbs, double, add						30%			
1900	Single, add						40%			
2120	Ventilating insulated plexiglass dome with curb mounting, 36" x 36"									
2130		G	G-3	12	2.667	Ea.	460	116		576
2150	52" x 52"	G		12	2.667		640	116		756
2160	28" x 52"	G		10	3.200		470	140		610
2170	36" x 52"	G		10	3.200		520	140		660
2180	For electric opening system, add	G					300			300
2300	Insulated safety glass with aluminum frame	G	G-3	160	.200	S.F.	90	8.75		98.75

62 Unit Skylights

62 13 - Domed Unit Skylights

2 13.20 Skylights		Crew	Daily Output	Labor-Hours	Unit	2012 Bare Costs			Total	Total Incl O&P
						Material	Labor	Equipment		
Sandwich panels, fiberglass, for walls, 1-9/16" thick, to 250 S.F.	G	G-3	200	.160	S.F.	17	7		24	29.50
As above, but for roofs, 2-3/4" thick, to 250 S.F.	G		295	.108		24.50	4.73		29.23	34.50
250 S.F. and up	G		330	.097		20	4.23		24.23	28.50

63 Metal-Framed Skylights

63 23 - Ridge Metal-Framed Skylights

63 23.10 Prefabricated

PREFABRICATED glass block with metal frame										
Minimum	G	G-3	265	.121	S.F.	56	5.25		61.25	69.50
Maximum	G	"	160	.200	"	108	8.75		116.75	132

71 Door Hardware

71 13 - Automatic Door Operators

71 13.10 Automatic Openers Commercial

AUTOMATIC OPENERS COMMERCIAL										
Pneumatic, incl opener, motion sens, control box, tubing, compressor										
For single swing door, per opening		2 Skwk	.80	20	Eq.	4,375	910		5,285	6,200
Poir, per opening			.50	32	Opng.	7,100	1,450		8,550	10,100
For single sliding door, per opening			.60	26.667		4,800	1,200		6,000	7,150
Bi-parting pair			.50	32		7,200	1,450		8,650	10,200
Electronic door opener incl motion sens, 12 V control box, motor										
For single swing door, per opening		2 Skwk	.80	20	Opng.	3,550	910		4,460	5,300
Poir, per opening			.50	32		5,800	1,450		7,250	8,625
For single sliding door, per opening			.60	26.667		3,850	1,200		5,050	6,125
Bi-parting pair			.50	32		5,900	1,450		7,350	8,750
Handicap actuator buttons, 2, including 12 V DC wiring, add		1 Corp	1.50	5.333	Pr.	450	235		685	855

71 13.20 Automatic Openers Industrial

AUTOMATIC OPENERS INDUSTRIAL										
Sliding doors up to 6' wide		2 Skwk	.60	26.667	Opng.	5,675	1,200		6,875	8,100
To 12' wide		"	.40	40	"	6,800	1,825		8,625	10,300
Over 12' wide, add per L.F. of excess					L.F.	780			780	860
Swing doors, to 5' wide		2 Skwk	.80	20	Eq.	3,350	910		4,260	5,100
Add for controls, wall pushbutton, 3 button			4	4		225	182		407	530
Ceiling pull cord			4.30	3.721		185	169		354	465

71 20 - Hardware

71 20.10 Bolts, Flush

BOLTS, FLUSH										
Standard, concealed		1 Corp	7	1.143	Eq.	23	50.50		73.50	103
Automatic fire exit		"	5	1.600		299	70.50		369.50	440
For electric release, add		1 Elec	3	2.667		125	137		262	345
Barrel, brass, 2" long		1 Corp	40	.200		7.70	8.80		16.50	22
4" long			40	.200		8.50	8.80		17.30	23
6" long			40	.200		15	8.80		23.80	30

71 20.15 Hardware

HARDWARE										
Average percentage for hardware, total job cost										
Minimum					Job					2%
Maximum										500%

08 71 Door Hardware

08 71 20 - Hardware

08 71 20.15 Hardware		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	
							Labor	Equipment		
0500	Total hardware for building, average distribution				Job	85%	15%			
1000	Door hardware, apartment, interior	1 Carp	4	2	Door	515	88		603	
1300	Average, door hardware, motel/hotel interior, with access card		4	2		635	88		723	
1500	Hospital bedroom, minimum		4	2		605	88		693	
2000	Maximum		3	2.667		720	118		838	
2100	Pocket door		6	1.333	Ea.	134	59		193	
2250	School, single exterior, incl. lever, incl. panic device		3	2.667	Door	1,125	118		1,243	
2500	Single interior, regular use, lever included		3	2.667		610	118		728	
2550	Average, door hwde, school, classroom, ANSI F84, lever handle		3	2.667		775	118		893	
2600	Average, door hwde, school, classroom, ANSI F88, incl. lever		3	2.667		820	118		938	
2850	Stairway, single interior		3	2.667		535	118		653	
3100	Double exterior, with panic device		2	4	Pr.	2,075	176		2,251	
6020	Add for fire alarm door holder, electro-magnetic	1 Elec	4	2	Ea.	99.50	103		202.50	
08 71 20.20 Door Protectors										
0010	DOOR PROTECTORS									
0020	1-3/4" x 3/4" U channel	2 Carp	80	.200	L.F.	25	8.80		33.80	
0021	1-3/4" x 1-1/4" U channel		80	.200	"	15	8.80		23.80	
1000	Tear drop, spring-stl, 8" high x 19" long		15	1.067	Ea.	95	47		142	
1010	8" high x 32" long		15	1.067		116	47		163	
1100	Tear drop, stainless stl, 8" high x 19" long		15	1.067		245	47		292	
1200	8" high x 32" long		15	1.067		305	47		352	
08 71 20.30 Door Closers										
0010	DOOR CLOSERS									
0020	Adjustable backcheck, 3 way mount, all sizes, regular arm	1 Carp	6	1.333	Ea.	184	59		243	
0040	Hold open arm		6	1.333		234	59		293	
0100	Fusible link		6.50	1.231		158	54.50		212.50	
0200	Non sized, regular arm		6	1.333		168	59		227	
0240	Hold open arm		6	1.333		204	59		263	
0400	4 way mount, non sized, regular arm		6	1.333		224	59		283	
0440	Hold open arm		6	1.333		234	59		293	
2000	Backcheck and adjustable power, hinge face mount									
2010	All sizes, regular arm	1 Carp	6.50	1.231	Ea.	214	54.50		268.50	
2040	Hold open arm		6.50	1.231		249	54.50		303.50	
2400	Top jamb mount, all sizes, regular arm		6	1.333		204	59		263	
2440	Hold open arm		6	1.333		214	59		273	
2800	Top face mount, all sizes, regular arm		6.50	1.231		198	54.50		252.50	
2840	Hold open arm		6.50	1.231		219	54.50		273.50	
4000	Backcheck, overhead concealed, all sizes, regular arm		5.50	1.455		220	64		284	
4040	Concealed arm		5	1.600		231	70.50		301.50	
4400	Compact overhead, concealed, all sizes, regular arm		5.50	1.455		350	64		414	
4440	Concealed arm		5	1.600		390	70.50		460.50	
4800	Concealed in door, all sizes, regular arm		5.50	1.455		360	64		424	
4840	Concealed arm		5	1.600		380	70.50		450.50	
4900	Floor concealed, all sizes, single acting		2.20	3.636		385	160		545	
4940	Double acting		2.20	3.636		325	160		485	
5000	For cast aluminum cylinder, deduct					35			35	
5040	For delayed action, add					46			46	
5080	For fusible link arm, add					35			35	
5120	For shock absorbing arm, add					50			50	
5160	For spring power adjustment, add					40			40	
6000	Closer-holder, hinge face mount, all sizes, exposed arm	1 Carp	6.50	1.231		168	54.50		222.50	
7000	Electronic closer-holder, hinge facemount, concealed arm		5	1.600		295	70.50		365.50	

71 Door Hardware

1 20 – Hardware

20.30 Door Closers	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
With built-in detector	1 Corp	5	1.600	Eo.	730	70.50		800.50	915
Surface mounted, stand. duty, parallel arm, primed, traditional		6	1.333		197	59		256	310
Light duty		6	1.333		127	59		186	231
Heavy duty		6	1.333		227	59		286	340
Standard duty, parallel arm, modern		6	1.333		230	59		289	345
Heavy duty	▼	6	1.333	▼	247	59		306	360

20.31 Door Closers

DOOR CLOSERS									
Door closer, rock and pinion	1 Corp	6.50	1.231	Eo.	172	54.50		226.50	273
Door, single acting, standard arm		1	8		203	355		558	770
Hold open arm		1	8		221	355		576	790
Frome, single acting, standard arm		1	8		340	355		695	920
Hold open arm		1	8		360	355		715	940
Double acting, standard arm		1	8		460	355		815	1,050
Hold open arm		1	8		470	355		825	1,050
Floor, center hung, single acting, bottom arm		1	8		325	355		680	905
Double acting		1	8		340	355		695	915
Offset hung, single acting, bottom arm	▼	1	8	▼	380	355		735	960
Electro magnetic closer/holder									
Single point, no detector	1 Corp	1	8	Eo.	360	355		715	940
Including detector		1	8		685	355		1,040	1,300
Multi-point, no detector		1	8		785	355		1,140	1,400
Including detector	▼	1	8	▼	795	355		1,150	1,425
Electric automatic operators									
Operator	1 Corp	1	8	Eo.	1,550	355		1,905	2,250
Wall plate actuator		1	8		199	355		554	765
Light duty, regular arm		1	8		113	355		468	670
Parallel arm		1	8		117	355		472	675
Hold open arm		1	8		123	355		478	680
Fusible link arm		1	8		179	355		534	740
Medium duty, regular arm		1	8		144	355		499	705
Extra duty parallel arm		1	8		153	355		508	715
Hold open arm		1	8		160	355		515	720
Positive stop arm		1	8		173	355		528	735
Heavy duty, regular arm		1	8		175	355		530	735
Top jamb mount		1	8		175	355		530	735
Extra duty parallel arm		1	8		175	355		530	735
Hold open arm		1	8		191	355		546	755
Positive stop arm		1	8		193	355		548	755
Fusible link arm		1	8		222	355		577	790
Universal heavy duty, regular arm		1	8		190	355		545	755
Parallel arm		1	8		190	355		545	755
Extra duty, parallel arm		1	8		195	355		550	760
Hold open arm		1	8		278	355		633	850
Positive stop arm		1	8		282	355		637	855
For delayed action odd	▼	1	8	▼	31	355		386	580

1 20.35 Panic Devices

PANIC DEVICES									
For rim latches, single door exit only	1 Corp	6	1.333	Eo.	530	59		589	675
Outside key and pull		5	1.600		575	70.50		645.50	740
Bar and vertical rod, exit only		5	1.600		735	70.50		805.50	920
Outside key and pull	▼	4	2	▼	810	88		898	1,025

08 71 Door Hardware

08 71 20 - Hardware

08 71 20.35 Panic Devices		Daily	Labor-			2012 Bare Costs			
		Crew	Output	Hours	Unit	Material	Labor	Equipment	Total
0400	Bar and concealed rod	1 Corp	4	2	Ea.	600	88		688
0600	Touch bar, exit only		6	1.333		510	59		569
0610	Outside key and pull		5	1.600		605	70.50		675.50
0700	Touch bar and vertical rod, exit only		5	1.600		670	70.50		740.50
0710	Outside key and pull		4	2		780	88		868
1000	Mortise, bar, exit only		4	2		550	88		638
1600	Touch bar, exit only		4	2		625	88		713
2000	Narrow stile, rim mounted, bar, exit only		6	1.333		655	59		714
2010	Outside key and pull		5	1.600		700	70.50		770.50
2200	Bar and vertical rod, exit only		5	1.600		680	70.50		750.50
2210	Outside key and pull		4	2		680	88		768
2400	Bar and concealed rod, exit only		3	2.667		765	118		883
3000	Mortise, bar, exit only		4	2		610	88		698
3600	Touch bar, exit only		4	2		880	88		968

08 71 20.40 Lockset

0010	LOCKSET, Standard duty								
0020	Non-keyed, passage, w/sect.trim	1 Corp	12	.667	Ea.	57.50	29.50		87
0100	Privacy		12	.667		62	29.50		91.50
0400	Keyed, single cylinder function		10	.800		92.50	35.50		128
0420	Hotel (see also Section 08 71 20.15)		8	1		135	44		179
0500	Lever handled, keyed, single cylinder function		10	.800		159	35.50		194.50
1000	Heavy duty with sectional trim, non-keyed, passages		12	.667		145	29.50		174.50
1100	Privacy		12	.667		185	29.50		214.50
1400	Keyed, single cylinder function		10	.800		220	35.50		255.50
1420	Hotel		8	1		325	44		369
1600	Communicating		10	.800		250	35.50		285.50
1690	For re-care cylinder, add					45			45
1700	Residential, interior door, minimum	1 Corp	16	.500		30	22		52
1720	Maximum		8	1		80	44		124
1800	Exterior, minimum		14	.571		45	25		70
1810	Average		8	1		72	44		116
1820	Maximum		8	1		180	44		224
3800	Cipher lockset w/key pad (security item)		13	.615		845	27		872
3900	Cipher lockset, with dial for swinging doors (security item)		13	.615		1,800	27		1,827
3920	with dial for swinging doors & drill resistant plate (security item)		12	.667		2,200	29.50		2,229.50
3950	Cipher lockset with dial for safe/vault door (security item)		12	.667		1,500	29.50		1,529.50
3980	Keyless, pushbutton type								
4000	Residential/light commercial, deadbolt, standard	1 Corp	9	.889	Ea.	150	39		189
4010	Heavy duty		9	.889		180	39		219
4020	Industrial, heavy duty, with deadbolt		9	.889		325	39		364
4030	Key override		9	.889		365	39		404
4040	Lever activated handle		9	.889		385	39		424
4050	Key override		9	.889		400	39		439
4060	Double sided pushbutton type		8	1		755	44		799
4070	Key override		8	1		790	44		834

08 71 20.41 Dead Locks

0010	DEAD LOCKS								
0011	Mortise heavy duty outside key (security item)	1 Corp	9	.889	Ea.	275	39		314
0020	Double cylinder		9	.889		270	39		309
0100	Medium duty, outside key		10	.800		150	35.50		185.50
0110	Double cylinder		10	.800		165	35.50		200.50
1000	Tubular, standard duty, outside key		10	.800		66	35.50		101.50

71 Door Hardware

1 20 – Hardware

20.41 Dead Locks	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
Double cylinder	1 Carp	10	.800	Ea.	84	35.50		119.50	147
Night latch, outside key	↓	10	.800	↓	83	35.50		118.50	146

20.42 Mortise Locksets

MORTISE LOCKSETS, Comm., wrought knobs & full escutcheon trim

Assumes mortise is cut

Non-keyed, passage, minimum	1 Carp	9	.889	Ea.	194	39		233	274
Maximum		8	1		300	44		344	400
Privacy, minimum		9	.889		200	39		239	281
Maximum		8	1		325	44		369	430
Keyed, office/entrance/apartment, minimum		8	1		230	44		274	320
Maximum		7	1.143		385	50.50		435.50	505
Single cylinder, typical, minimum		8	1		198	44		242	286
Maximum		7	1.143		360	50.50		410.50	475
Hotel, minimum (see also Section 08 71 20.15)		7	1.143		250	50.50		300.50	355
Maximum (see also Section 08 71 20.15)		6	1.333		400	59		459	530
Communication, double cylinder, minimum		8	1		225	44		269	315
Maximum		7	1.143		300	50.50		350.50	410
Wrought knobs and sectional trim, non-keyed, passage, minimum		10	.800		130	35.50		165.50	198
Maximum		9	.889		245	39		284	330
Privacy, minimum		10	.800		145	35.50		180.50	215
Maximum		9	.889		265	39		304	355
Keyed, entrance, office/apartment, minimum		9	.889		220	39		259	305
Maximum		8	1		315	44		359	420
Single cylinder, typical, minimum		9	.889		225	39		264	310
Maximum	↓	8	1	↓	305	44		349	405
Cast knobs and full escutcheon trim									
Non-keyed, passage, minimum	1 Carp	9	.889	Ea.	275	39		314	365
Maximum		8	1		425	44		469	540
Privacy, minimum		9	.889		320	39		359	410
Maximum		8	1		450	44		494	565
Keyed, single cylinder, typical, minimum		8	1		330	44		374	435
Maximum		7	1.143		500	50.50		550.50	630
Cast knob and sectional trim, non-keyed, passage, minimum		10	.800		210	35.50		245.50	286
Maximum		10	.800		400	35.50		435.50	495
Privacy, minimum		10	.800		225	35.50		260.50	305
Maximum		10	.800		400	35.50		435.50	495
Keyed, office/entrance/apartment, minimum		9	.889		255	39		294	340
Maximum		9	.889		420	39		459	520
Single cylinder, typical, minimum		9	.889		260	39		299	345
Maximum	↓	9	.889	↓	510	39		549	620
For re-core cylinder, add				↓	45			45	49.50

1 20.45 Peepholes

PEEPOLES									
Peephole	1 Carp	32	.250	Ea.	15.80	11.05		26.85	34.50
Peephole, wide view	"	32	.250	"	17	11.05		28.05	35.50

1 20.50 Door Stops

DOOR STOPS									
Holder & bumper, floor or wall	1 Carp	32	.250	Ea.	35.50	11.05		46.55	56
Wall bumper, 4" diameter, with rubber pad, aluminum		32	.250		10.95	11.05		22	29
Door bumper, floor type, aluminum		32	.250		7.10	11.05		18.15	25
Plunger type, door mounted	↓	32	.250	↓	27	11.05		38.05	46.50

08 71 Door Hardware

08 71 20 - Hardware

08 71 20.55 Push-Pull Plates					Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	To Inc
										Labor	Equipment		
0010	PUSH-PULL PLATES												
0100	Push plate, .050 thick, 4" x 16", aluminum				1 Corp	12	.667	Ea.	10.20	29.50		39.70	
0500	Bronze					12	.667		21.50	29.50		51	
1500	Pull handle and push bar, aluminum					11	.727		131	32		163	
2000	Bronze					10	.800		169	35.50		204.50	
3000	Push plate bath sides, aluminum					14	.571		19.95	25		44.95	
3500	Bronze					13	.615		44	27		71	
4000	Door pull, designer style, cast aluminum, minimum					12	.667		71.50	29.50		101	
5000	Maximum					8	1		370	44		414	
6000	Cast bronze, minimum					12	.667		87	29.50		116.50	
7000	Maximum					8	1		405	44		449	
8000	Walnut, minimum					12	.667		67	29.50		96.50	
9000	Maximum				▼	8	1	▼	370	44		414	
08 71 20.60 Entrance Locks													
0010	ENTRANCE LOCKS												
0015	Cylinder, grip handle deadlocking latch				1 Corp	9	.889	Ea.	132	39		171	
0020	Deadbolt					8	1		160	44		204	
0100	Push and pull plate, dead bolt				♿	8	1		150	44		194	
0900	For handicapped lever, add								170			170	
08 71 20.65 Thresholds													
0010	THRESHOLDS												
0011	Threshold 3' long saddles aluminum				1 Corp	48	.167	L.F.	5.60	7.35		12.95	
0100	Aluminum, 8" wide, 1/2" thick					12	.667	Ea.	41.50	29.50		71	
0500	Bronze					60	.133	L.F.	42	5.90		47.90	
0600	Bronze, panic threshold, 5" wide, 1/2" thick					12	.667	Ea.	71.50	29.50		101	
0700	Rubber, 1/2" thick, 5-1/2" wide					20	.400		42	17.65		59.65	
0800	2-3/4" wide				▼	20	.400		30.50	17.65		48.15	
1950	ADA Compliant Thresholds				♿								
2300	Threshold, aluminum 4" wide x 36" long				1 Corp	12	.667		33	29.50		62.50	
2310	4" wide x 48" long					12	.667		41	29.50		70.50	
2360	6" wide x 36" long					12	.667		53	29.50		82.50	
2370	6" wide x 48" long				▼	12	.667	▼	68	29.50		97.50	
08 71 20.70 Floor Checks													
0010	FLOOR CHECKS												
0020	For over 3' wide doors single acting				1 Corp	2.50	3.200	Ea.	520	141		661	
0500	Double acting				"	2.50	3.200	"	670	141		811	
08 71 20.75 Door Hardware Accessories													
0010	DOOR HARDWARE ACCESSORIES												
0050	Door closing coordinator, 36" (for paired openings up to 56")				1 Corp	8	1	Ea.	94	44		138	
0060	48" (for paired openings up to 84")				▼	8	1	▼	101	44		145	
0070	56" (for paired openings up to 96")				▼	8	1	▼	111	44		155	
08 71 20.80 Hasps													
0010	HASPS, steel assembly												
0015	3"				1 Corp	26	.308	Ea.	4.77	13.55		18.32	
0020	4-1/2"					13	.615		6.55	27		33.55	
0040	6"				▼	12.50	.640	▼	9.30	28		37.30	
08 71 20.90 Hinges													
0010	HINGES												
0012	Full mortise, avg. freq., steel base, USP, 4-1/2" x 4-1/2"							Pr.	27.50			27.50	
0100	5" x 5", USP								43.50			43.50	
0200	6" x 6", USP								91.50			91.50	

71 Door Hardware

71 20 - Hardware

1 20.90 Hinges	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
Brass base, 4-1/2" x 4-1/2", US10				Pr.	54.50			54.50	60
5" x 5", US10					78			78	85.50
6" x 6", US10					132			132	145
Stainless steel base, 4-1/2" x 4-1/2", US32				▼	82			82	90
For non removable pin, add (security item)				Ea.	4.89			4.89	5.40
For floating pin, driven tips, add					3.30			3.30	3.63
For hospital type tip on pin, add					14.35			14.35	15.80
For steeple type tip on pin, add				▼	13.25			13.25	14.60
Full mortise, high frequency, steel base, 3-1/2" x 3-1/2", US26D				Pr.	29.50			29.50	32.50
4-1/2" x 4-1/2", USP					63			63	69.50
5" x 5", USP					59.50			59.50	65.50
6" x 6", USP					144			144	159
Brass base, 3-1/2" x 3-1/2", US4					52			52	57.50
4-1/2" x 4-1/2", US10					85.50			85.50	94
5" x 5", US10					125			125	138
6" x 6", US10					180			180	198
Stainless steel base, 4-1/2" x 4-1/2", US32					127			127	140
5" x 4-1/2", US32				▼	182			182	200
For hospital type tip on pin, add				Ea.	13.15			13.15	14.45
Full mortise, low frequency, steel base, 3-1/2" x 3-1/2", US26D				Pr.	12.10			12.10	13.30
4-1/2" x 4-1/2", USP					13.05			13.05	14.35
5" x 5", USP					32			32	35.50
6" x 6", USP					64.50			64.50	71
4-1/2" x 4-1/2", US3					18.85			18.85	20.50
5" x 5", US3					45			45	49.50
Brass base, 4-1/2" x 4-1/2", US10					45.50			45.50	50
5" x 5", US10					68.50			68.50	75
Stainless steel base, 4-1/2" x 4-1/2", US32				▼	77			77	84.50

71 20.91 Special Hinges

SPECIAL HINGES									
Paumelle, high frequency									
Steel base, 6" x 4-1/2", US10				Pr.	145			145	160
Brass base, 5" x 4-1/2", US10				Ea.	208			208	229
Paumelle, average frequency, steel base, 4-1/2" x 3-1/2", US10				Pr.	98.50			98.50	108
Olive knuckle, low frequency, brass base, 6" x 4-1/2", US10				Ea.	152			152	167
Electric hinge with concealed conductor, average frequency									
Steel base, 4-1/2" x 4-1/2", US26D				Pr.	315			315	345
Bronze base, 4-1/2" x 4-1/2", US26D				"	320			320	350
Electric hinge with concealed conductor, high frequency									
Steel base, 4-1/2" x 4-1/2", US26D				Pr.	241			241	265
Double weight, 800 lb., steel base, removable pin, 5" x 6", USP					132			132	145
Steel base-welded pin, 5" x 6", USP					166			166	183
Triple weight, 2000 lb., steel base, welded pin, 5" x 6", USP					151			151	166
Pivot reinf., high frequency, steel base, 7-3/4" door plate, USP					189			189	208
Bronze base, 7-3/4" door plate, US10				▼	232			232	255
Swing clear, full mortise, full or half surface, high frequency,									
Steel base, 5" high, USP				Pr.	159			159	175
Swing clear, full mortise, average frequency									
Steel base, 4-1/2" high, USP				Pr.	127			127	140
Wide throw, average frequency, steel base, 4-1/2" x 6", USP					97			97	107
High frequency, steel base, 4-1/2" x 6", USP				▼	148			148	163
Spring hinge, single acting, 6" flange, steel				Ea.	54.50			54.50	60

08 71 Door Hardware

08 71 20 - Hardware

08 71 20.91 Special Hinges		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl Tax
							Labor	Equipment		
4700	Brass				Ea.	96			96	105
4900	Double acting, 6" flange, steel					97			97	108
4950	Brass					159			159	175
8000	Continuous hinges									
8010	Steel, piano, 2" x 72"	1 Corp	20	.400	Ea.	22	17.65		39.65	51
8020	Brass, piano, 1-1/16" x 30"		30	.267		8	11.75		19.75	23
8030	Acrylic, piano, 1-3/4" x 12"		40	.200		15	8.80		23.80	30
9000	Continuous hinge, steel, full martise, heavy duty, 96 inch		2	4		565	176		741	891

08 71 20.95 Kick Plates

0010 KICK PLATES		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl Tax
							Labor	Equipment		
0020	Stainless steel, .050, 16 ga, 8" x 28", US32	1 Corp	15	.533	Ea.	35	23.50		58.50	74
0030	8" x 30"		15	.533		36	23.50		59.50	75
0040	8" x 34"		15	.533		40	23.50		63.50	80
0050	10" x 28"		15	.533		67	23.50		90.50	110
0060	10" x 30"		15	.533		72	23.50		95.50	115
0070	10" x 34"		15	.533		81	23.50		104.50	125
0080	Map/Kick, 4" x 28"		15	.533		30	23.50		53.50	69
0090	4" x 30"		15	.533		32	23.50		55.50	71
0100	4" x 34"		15	.533		36	23.50		59.50	75
0110	6" x 28"		15	.533		38	23.50		61.50	78
0120	6" x 30"		15	.533		41	23.50		64.50	81
0130	6" x 34"		15	.533		47	23.50		70.50	87
0500	Brnze, .050", 8" x 28"		15	.533		48.50	23.50		72	89
0510	8" x 30"		15	.533		63	23.50		86.50	106
0520	8" x 34"		15	.533		71	23.50		94.50	114
0530	10" x 28"		15	.533		73	23.50		96.50	117
0540	10" x 30"		15	.533		78	23.50		101.50	122
0550	10" x 34"		15	.533		89	23.50		112.50	134
0560	Map/Kick, 4" x 28"		15	.533		31	23.50		54.50	70
0570	4" x 30"		15	.533		34	23.50		57.50	73
0580	4" x 34"		15	.533		35	23.50		58.50	74
0590	6" x 28"		15	.533		44	23.50		67.50	84
0600	6" x 30"		15	.533		50	23.50		73.50	91
0610	6" x 34"		15	.533		54	23.50		77.50	95
1000	Acrylic, .125", 8" x 26"		15	.533		28	23.50		51.50	67
1010	8" x 36"		15	.533		38	23.50		61.50	78
1020	8" x 42"		15	.533		45	23.50		68.50	85
1030	10" x 26"		15	.533		35	23.50		58.50	74
1040	10" x 36"		15	.533		48	23.50		71.50	89
1050	10" x 42"		15	.533		68.50	23.50		92	112
1060	Map/Kick, 4" x 26"		15	.533		17	23.50		40.50	54
1070	4" x 36"		15	.533		24	23.50		47.50	62
1080	4" x 42"		15	.533		27	23.50		50.50	65
1090	6" x 26"		15	.533		23	23.50		46.50	61
1100	6" x 36"		15	.533		34	23.50		57.50	73
1110	6" x 42"		15	.533		39	23.50		62.50	79
1220	Brass, .050", 8" x 26"		15	.533		56	23.50		79.50	97
1230	8" x 36"		15	.533		75	23.50		98.50	119
1240	8" x 42"		15	.533		86	23.50		109.50	131
1250	10" x 26"		15	.533		71	23.50		94.50	114
1260	10" x 36"		15	.533		91	23.50		114.50	134
1270	10" x 42"		15	.533		105	23.50		128.50	153

71 Door Hardware

71 20 – Hardware

20.95 Kick Plates

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Mop/Kick, 4" x 26"	1 Carp	15	.533	Eq.	28	23.50		51.50	67
4" x 36"		15	.533		39	23.50		62.50	79
4" x 42"		15	.533		44	23.50		67.50	84.50
6" x 26"		15	.533		38	23.50		61.50	78
6" x 36"		15	.533		48	23.50		71.50	89
6" x 42"		15	.533		55	23.50		78.50	96.50
Aluminum, .050", 8" x 26"		15	.533		25	23.50		48.50	63.50
8" x 36"		15	.533		30.50	23.50		54	69.50
8" x 42"		15	.533		35.50	23.50		59	75
10" x 26"		15	.533		27.50	23.50		51	66.50
10" x 36"		15	.533		38	23.50		61.50	78
10" x 42"		15	.533		44.50	23.50		68	85
Mop/Kick, 4" x 26"		15	.533		11	23.50		34.50	48
4" x 36"		15	.533		15.50	23.50		39	53
4" x 42"		15	.533		17	23.50		40.50	54.50
6" x 26"		15	.533		16.50	23.50		40	54
6" x 36"		15	.533		23	23.50		46.50	61.50
6" x 42"		15	.533		27	23.50		50.50	65.50

71 21 – Astragals

21.10 Exterior Mouldings, Astragals

EXTERIOR MOULDINGS, ASTRAGALS

One piece, overlapping cadmium plated steel, flat, 3/16" x 2"	1 Carp	90	.089	L.F.	3.78	3.92		7.70	10.20
Prime coated steel, flat, 1/8" x 3"		90	.089		4.95	3.92		8.87	11.50
Stainless steel, flat, 3/32" x 1-5/8"		90	.089		18.80	3.92		22.72	26.50
Aluminum, flat, 1/8" x 2"		90	.089		3.78	3.92		7.70	10.20
Nail on, "T" extrusion		120	.067		1.05	2.94		3.99	5.70
Vinyl bulb insert		105	.076		1.47	3.36		4.83	6.75
Screw on, "T" extrusion		90	.089		5.45	3.92		9.37	12.05
Vinyl insert		75	.107		3.65	4.70		8.35	11.25
"L" extrusion, neoprene bulbs		75	.107		2.20	4.70		6.90	9.65
Neoprene sponge insert		75	.107		6.35	4.70		11.05	14.25
Magnetic		75	.107		10.50	4.70		15.20	18.80
Spring hinged security seal, with com		75	.107		6.75	4.70		11.45	14.70
Spring loaded locking bolt, vinyl insert		45	.178		9.10	7.85		16.95	22
Neoprene sponge strip, "Z" shaped, aluminum		60	.133		4.45	5.90		10.35	13.95
Solid neoprene strip, nail on aluminum strip		90	.089		3.65	3.92		7.57	10.05
One piece stile protection									
Neoprene fabric loop, nail on aluminum strips	1 Carp	60	.133	L.F.	.95	5.90		6.85	10.10
Flush mounted aluminum extrusion, 1/2" x 1-1/4"		60	.133		3.51	5.90		9.41	12.90
3/4" x 1-3/8"		60	.133		4.46	5.90		10.36	13.95
1-1/8" x 1-3/4"		60	.133		7.05	5.90		12.95	16.80
Mortise, 9/16" x 3/4"		60	.133		3.80	5.90		9.70	13.25
13/16" x 1-3/8"		60	.133		4.10	5.90		10	13.55
Spring bronze strip, nail on type		105	.076		3.30	3.36		6.66	8.80
Screw on, with retainer		75	.107		2.65	4.70		7.35	10.15
Flexible stainless steel housing, pile insert, 1/2" door		105	.076		7.20	3.36		10.56	13.05
3/4" door		105	.076		8.05	3.36		11.41	14
Extruded aluminum retainer, flush mount, pile insert		105	.076		2.55	3.36		5.91	7.95
Mortise, felt insert		90	.089		4.50	3.92		8.42	11
Mortise with spring, pile insert		90	.089		3.57	3.92		7.49	10
Rigid vinyl retainer, mortise, pile insert		105	.076		2.55	3.36		5.91	7.95
Wool pile filler strip, aluminum backing		105	.076		2.60	3.36		5.96	8

08 71 Door Hardware

08 71 21 – Astragals

08 71 21.10 Exterior Mouldings, Astragals		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind
							Labor	Equipment		
5000	Two piece overlapping astragal, extruded aluminum retainer									
5010	Pile insert	1 Corp	60	.133	L.F.	3.30	5.90		9.20	
5020	Vinyl bulb insert		60	.133		2.20	5.90		8.10	
5040	Vinyl flap insert		60	.133		6.55	5.90		12.45	
5060	Solid neoprene flap insert		60	.133		6.50	5.90		12.40	
5080	Hypalon rubber flap insert		60	.133		6.60	5.90		12.50	
5090	Snop on cover, pile insert		60	.133		7.55	5.90		13.45	
5400	Magnetic aluminum, surface mounted		60	.133		25	5.90		30.90	
5500	Interlocking aluminum, 5/8" x 1" neoprene bulb insert		45	.178		4.15	7.85		12	
5600	Adjustable aluminum, 9/16" x 21/32", pile insert		45	.178		19.15	7.85		27	
5790	For vinyl bulb, deduct					.70			.70	
5800	Magnetic, adjustable, 9/16" x 21/32"	1 Corp	45	.178		24.50	7.85		32.35	
6000	Two piece stile protection									
6010	Cloth backed rubber loop, 1" gap, nail on aluminum strips	1 Corp	45	.178	L.F.	4.30	7.85		12.15	
6040	Screw on aluminum strips		45	.178		6.50	7.85		14.35	
6100	1-1/2" gap, screw on aluminum extrusion		45	.178		5.80	7.85		13.65	
6240	Vinyl fabric loop, slatted aluminum extrusion, 1" gap		45	.178		2.15	7.85		10	
6300	1-1/4" gap		45	.178		6.15	7.85		14	

08 71 25 – Weatherstripping

08 71 25.10 Mechanical Seals, Weatherstripping		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind
							Labor	Equipment		
0010	MECHANICAL SEALS, WEATHERSTRIPPING									
1000	Doors, wood frame, interlocking, for 3' x 7' door, zinc	1 Corp	3	2.667	Opng.	20	118		138	20
1100	Brnze		3	2.667		29	118		147	21
1300	6' x 7' opening, zinc		2	4		20	176		196	29
1400	Brnze		2	4		36	176		212	31
1700	Wood frame, spring type, brnze									
1800	3' x 7' door	1 Corp	7.60	1.053	Opng.	19.70	46.50		66.20	
1900	6' x 7' door	"	7	1.143	"	29	50.50		79.50	10
2200	Metal frame, spring type, brnze									
2300	3' x 7' door	1 Corp	3	2.667	Opng.	38.50	118		156.50	22
2400	6' x 7' door	"	2.50	3.200	"	49	141		190	27
2500	For stainless steel, spring type, add					133%				
2700	Metal frame, extruded sections, 3' x 7' door, aluminum	1 Corp	3	2.667	Opng.	46	118		164	23
2800	Brnze		3	2.667		120	118		238	31
3100	6' x 7' door, aluminum		1.50	5.333		58	235		293	42
3200	Brnze		1.50	5.333		137	235		372	51
3500	Threshold weatherstripping									
3650	Door sweep, flush mounted, aluminum	1 Corp	25	.320	Eq.	15	14.10		29.10	
3700	Vinyl		25	.320		18	14.10		32.10	
5000	Gorge door bottom weatherstrip, 12' aluminum, clear		14	.571		22	25		47	
5010	Brnze		14	.571		86	25		111	13
5050	Bottom protection, Rubber		14	.571		31	25		56	7
5100	Threshold		14	.571		92.50	25		117.50	14

74 Access Control Hardware

74 13 – Card Key Access Control Hardware

74 13.50 Card Key Access

CARD KEY ACCESS, does not include door hardware

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	Bare Costs Equipment	Total	Total Incl O&P
Card type, 1 time zone, minimum				Eo.	665			665	730
Maximum					1,775			1,775	1,950
3 time zones, minimum					2,200			2,200	2,425
Maximum					2,450			2,450	2,700
System with printer, and control console, 3 zones				Total	9,150			9,150	10,100
6 zones				"	12,000			12,000	13,200
For each door, minimum, add				Eo.	1,500			1,500	1,650
Maximum, add				"	2,100			2,100	2,300

74 19 – Biometric Identity Access Control Hardware

74 19.50 Biometric Identity Access

BIOMETRIC IDENTITY ACCESS

Hand geometry scanner, mem of 512 users, excl striker/power	1 Elec	3	2.667	Eo.	2,100	137		2,237	2,500
Memory upgrade for, odds 9,700 user profiles		8	1		300	51.50		351.50	405
Adds 32,500 user profiles		8	1		600	51.50		651.50	735
Prison type, memory of 256 users, excl striker, power		3	2.667		2,600	137		2,737	3,050
Memory upgrade for, odds 3,300 user profiles		8	1		250	51.50		301.50	350
Adds 9,700 user profiles		8	1		460	51.50		511.50	580
Adds 27,900 user profiles		8	1		610	51.50		661.50	745
All weather, mem of 512 users, excl striker/power		3	2.667		3,900	137		4,037	4,500
Facial & fingerprint scanner, combination unit, excl striker/power		3	2.667		4,200	137		4,337	4,825
Access for, for initial setup, excl striker/power		3	2.667		1,100	137		1,237	1,400

75 Window Hardware

75 30 – Weatherstripping

75 30.10 Mechanical Weather Seals

MECHANICAL WEATHER SEALS, Window, double hung, 3' X 5'

Zinc	1 Corp	7.20	1.111	Opng.	13	49		62	90
Bronze		7.20	1.111		28	49		77	107
As above but heavy duty, zinc		4.60	1.739		20	76.50		96.50	140
Bronze		4.60	1.739		35	76.50		111.50	157

79 Hardware Accessories

79 13 – Key Storage Equipment

79 13.10 Key Cabinets

KEY CABINETS

Wall mounted, 60 key capacity	1 Corp	20	.400	Eo.	103	17.65		120.65	140
Drower type, 600 key capacity	1 Clob	15	.533		725	18.70		743.70	830
2,400 key capacity		20	.400		4,200	14.05		4,214.05	4,650
Troy type, 20 key capacity		50	.160		46	5.60		51.60	59
50 key capacity		40	.200		102	7		109	123

79 20 – Door Accessories

79 20.10 Door Hardware Accessories

DOOR HARDWARE ACCESSORIES

Door bolt, surface, 4"	1 Corp	32	.250	Eo.	11.70	11.05		22.75	30
Door latch	"	12	.667	"	8.45	29.50		37.95	54.50
Sliding closet door									
Track and hanger, single	1 Corp	10	.800	Eo.	56	35.50		91.50	116

08 79 Hardware Accessories

08 79 20 – Door Accessories

08 79 20.10 Door Hardware Accessories		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	To Incl.
							Labor	Equipment		
0240	Double	1 Corp	8	1	Eq.	75	44		119	
0260	Door guide, single		48	.167		25	7.35		32.35	
0280	Double		48	.167		34	7.35		41.35	
0600	Deadbolt and lock cover plate, brass or stainless steel		30	.267		28	11.75		39.75	
0620	Half cover plate, brass or chrome		35	.229		7.50	10.10		17.60	
2240	Martise lockset, passage, lever handle		9	.889		198	39		237	
4000	Security chain, standard		18	.444		7.90	19.60		27.50	

08 81 Glass Glazing

08 81 10 – Float Glass

08 81 10.10 Various Types and Thickness of Float Glass

VARIOUS TYPES AND THICKNESS OF FLOAT GLASS		R088110-10								
0010	3/16" Plain	2 Glaz	130	.123	S.F.	4.71	5.25		9.96	
0200	Tempered, clear		130	.123		6.55	5.25		11.80	
0300	Tinted		130	.123		7.45	5.25		12.70	
0600	1/4" thick, clear, plain		120	.133		5.50	5.70		11.20	
0700	Tinted		120	.133		8.80	5.70		14.50	
0800	Tempered, clear		120	.133		8.25	5.70		13.95	
0900	Tinted		120	.133		10.20	5.70		15.90	
1600	3/8" thick, clear, plain		75	.213		9.60	9.10		18.70	
1700	Tinted		75	.213		15.10	9.10		24.20	
1800	Tempered, clear		75	.213		15.85	9.10		24.95	
1900	Tinted		75	.213		17.60	9.10		26.70	
2200	1/2" thick, clear, plain		55	.291		16.25	12.45		28.70	
2300	Tinted		55	.291		26.50	12.45		38.95	
2400	Tempered, clear		55	.291		23.50	12.45		35.95	
2500	Tinted		55	.291		24.50	12.45		36.95	
2800	5/8" thick, clear, plain		45	.356		26.50	15.20		41.70	
2900	Tempered, clear		45	.356		30	15.20		45.20	
3200	3/4" thick, clear, plain		35	.457		34	19.55		53.55	
3300	Tempered, clear		35	.457		39.50	19.55		59.05	
3600	1" thick, clear, plain		30	.533		56.50	23		79.50	
8900	For low emissivity coating for 3/16" & 1/4" only, add to above					18%				

08 81 13 – Decorative Glass Glazing

08 81 13.10 Beveled Glass

BEVELED GLASS, with design patterns										
0010	Minimum	2 Glaz	150	.107	S.F.	58	4.56		62.56	
0050	Average		125	.128		129	5.45		134.45	
0100	Maximum		100	.160		229	6.85		235.85	
0102	Maximum, per L.F. for 30" cabinet	1 Glaz	40	.200	L.F.	570	8.55		578.55	

08 81 13.20 Faceted Glass

FACETED GLASS, Color tinted 3/4" thick										
0010	Minimum	2 Glaz	95	.168	S.F.	46.50	7.20		53.70	
0100	Maximum	"	75	.213	"	81.50	9.10		90.60	

08 81 13.30 Sandblasted Glass

SANDBLASTED GLASS, float glass										
0010	1/8" thick	2 Glaz	160	.100	S.F.	10.60	4.28		14.88	
0100	3/16" thick		130	.123		11.70	5.25		16.95	
0500	1/4" thick		120	.133		12.20	5.70		17.90	
0600	3/8" thick		75	.213		13.10	9.10		22.20	

81 Glass Glazing

11 20 – Vision Panels

20.10 Full Vision	Daily Labor-				Material	2012 Base Costs		Total	Total Ind O&P
	Crew	Output	Hours	Unit		Labor	Equipment		
FULL VISION window system with 3/4" gloss mullions									
Up to 10' high	H-2	130	.185	S.F.	60.50	7.40		67.90	78
10' to 20' high, minimum		110	.218		64	8.75		72.75	84
Average		100	.240		69	9.65		78.65	90.50
Maximum	▼	80	.300	▼	78	12.05		90.05	104

11 25 – Glazing Variables

25.10 Applications of Glazing

APPLICATIONS OF GLAZING		R088110-10							
For high rise glazing, exterior, odd per S.F. per story				S.F.					.46
For gloss replacement, odd				"		100%			
For gasket settings, odd				L.F.	5.60			5.60	6.15
For sloped glazing, odd				S.F.		26%			
Fabrication, polished edges, 1/4" thick				Inch	.52			.52	.57
1/2" thick					1.25			1.25	1.38
Mitered edges, 1/4" thick					1.25			1.25	1.38
1/2" thick					2.05			2.05	2.26

11 30 – Insulating Glass

30.10 Reduce Heat Transfer Glass

REDUCE HEAT TRANSFER GLASS		R088110-10								
2 lites 1/8" float, 1/2" thk under 15 S.F.										
Clear	G	2 Glaz	95	.168	S.F.	9.45	7.20	16.65	21.50	
Tinted	G		95	.168		13.20	7.20	20.40	25.50	
2 lites 3/16" float, for 5/8" thk unit, 15 to 30 S.F., clear			90	.178		13.20	7.60	20.80	26	
Tinted	G		90	.178		13.50	7.60	21.10	26.50	
1" thk, dbl. glozed, 1/4" float, 30-70 S.F., clear			75	.213		15.95	9.10	25.05	31.50	
Tinted	G		75	.213		22.50	9.10	31.60	39	
1" thick double glozed, 1/4" float, 1/4" wire			75	.213		22	9.10	31.10	38.50	
1/4" float, 1/4" tempered			75	.213		18.90	9.10	28	35	
1/4" wire, 1/4" tempered			75	.213		28	9.10	37.10	45	
Both lites, 1/4" wire			75	.213		36	9.10	45.10	53.50	
Both lites, light & heat reflective		G	85	.188		30	8.05	38.05	45	
Heat reflective, film inside, 1" thick unit, clear		G	85	.188		26.50	8.05	34.55	41	
Tinted		G	85	.188		27.50	8.05	35.55	42.50	
Film on weatherside, clear, 1/2" thick unit		G	95	.168		18.90	7.20	26.10	32	
5/8" thick unit		G	90	.178		18.70	7.60	26.30	32	
1" thick unit		G	85	.188		26	8.05	34.05	40.50	

11 35 – Translucent Glass

35.10 Obscure Glass

OBSOURE GLASS									
1/8" thick, Minimum	2 Glaz	140	.114	S.F.	11.20	4.89	16.09	19.70	
Maximum		125	.128		13.20	5.45	18.65	23	
7/32" thick, minimum		120	.133		12.20	5.70	17.90	22	
Maximum	▼	105	.152	▼	15.40	6.50	21.90	27	

35.20 Patterned Glass

PATTERNED GLASS, colored									
1/8" thick, Minimum		2 Glaz	140	.114	S.F.	9.10	4.89	13.99	17.40
Maximum			125	.128		15.30	5.45	20.75	25
7/32" thick, minimum			120	.133		11.25	5.70	16.95	21
Maximum		▼	105	.152	▼	16.30	6.50	22.80	28

08 81 Glass Glazing

08 81 45 - Sheet Glass

08 81 45.10 Window Glass, Sheet		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Inc.
							Labor	Equipment		
0010	WINDOW GLASS, SHEET gray									
0020	1/8" thick	2 Glaz	160	.100	S.F.	5.40	4.28		9.68	
0200	1/4" thick	"	130	.123	"	6.60	5.25		11.85	

08 81 50 - Spandrel Glass

08 81 50.10 Glass for Non Vision Areas

0010	GLASS FOR NON VISION AREAS, 1/4" thick standard colors									
0020	Up to 1000 S.F.	2 Glaz	110	.145	S.F.	15.85	6.20		22.05	
0200	1,000 to 2,000 S.F.	"	120	.133	"	14.75	5.70		20.45	
0300	For custom colors, odd				Total	10%				
0500	For 3/8" thick, odd				S.F.	10.90			10.90	
1000	For double coated, 1/4" thick, odd					4.08			4.08	
1200	For insulation on panels, odd					6.70			6.70	
2000	Panels, insulated, with aluminum backed fiberglass, 1" thick	2 Glaz	120	.133		16.20	5.70		21.90	
2100	2" thick	"	120	.133		19.20	5.70		24.90	
2500	With galvanized steel backing, odd					5.60			5.60	

08 81 55 - Window Glass

08 81 55.10 Sheet Glass

0010	SHEET GLASS(window), clear float, staps, putty bed									
0015	1/8" thick, clear float	2 Glaz	480	.033	S.F.	3.47	1.42		4.89	
0500	3/16" thick, clear		480	.033		5.50	1.42		6.92	
0600	Tinted		480	.033		7.20	1.42		8.62	
0700	Tempered		480	.033		8.80	1.42		10.22	

08 81 65 - Wire Glass

08 81 65.10 Glass Reinforced With Wire

0010	GLASS REINFORCED WITH WIRE									
0012	1/4" thick rough obscure	2 Glaz	135	.119	S.F.	21	5.05		26.05	
1000	Polished wire, 1/4" thick, diamond, clear		135	.119		24.50	5.05		29.55	
1500	Pinstripe, obscure		135	.119		30	5.05		35.05	

08 83 Mirrors

08 83 13 - Mirrored Glass Glazing

08 83 13.10 Mirrors

0010	MIRRORS, No frames, wall type, 1/4" plate glass, polished edge									
0100	Up to 5 S.F.	2 Glaz	125	.128	S.F.	9.50	5.45		14.95	
0200	Over 5 S.F.		160	.100		9.25	4.28		13.53	
0500	Door type, 1/4" plate glass, up to 12 S.F.		160	.100		8.35	4.28		12.63	
1000	Floor glass, up to 10 S.F., 1/8" thick		160	.100		5.50	4.28		9.78	
1100	3/16" thick		150	.107		6.75	4.56		11.31	
1500	12" x 12" wall tiles, square edge, clear		195	.082		2	3.51		5.51	
1600	Veined		195	.082		4.95	3.51		8.46	
2000	1/4" thick, stock sizes, one way transparent		125	.128		18.45	5.45		23.90	
2010	Bothroom, unfromed, laminated		160	.100		13	4.28		17.28	

08 83 13.15 Reflective Glass

0010	REFLECTIVE GLASS									
0100	1/4" float with fused metallic oxide fixed	G	2 Glaz	115	.139	S.F.	16.30	5.95	22.25	
0500	1/4" float glass with reflective applied coating	G	"	115	.139	"	13.20	5.95	19.15	

84 Plastic Glazing

84 10 - Plexiglass Glazing

10.10 Plexiglass Acrylic

PLEXIGLASS ACRYLIC, clear, masked,

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
1/8" thick, cut sheets	2 Glaz	170	.094	S.F.	5.30	4.02		9.32	11.95
Full sheets		195	.082		3.50	3.51		7.01	9.15
1/4" thick, cut sheets		165	.097		9.20	4.15		13.35	16.40
Full sheets		185	.086		6	3.70		9.70	12.20
3/8" thick, cut sheets		155	.103		16.85	4.41		21.26	25.50
Full sheets		180	.089		9.10	3.80		12.90	15.75
1/2" thick, cut sheets		135	.119		19.40	5.05		24.45	29
Full sheets		150	.107		18.80	4.56		23.36	27.50
3/4" thick, cut sheets		115	.139		69	5.95		74.95	85
Full sheets		130	.123		40	5.25		45.25	52
1" thick, cut sheets		105	.152		77.50	6.50		84	95.50
Full sheets		125	.128		48	5.45		53.45	61.50
Colored, 1/8" thick, cut sheets		170	.094		16	4.02		20.02	23.50
Full sheets		195	.082		10.30	3.51		13.81	16.65
1/4" thick, cut sheets		165	.097		18	4.15		22.15	26
Full sheets		185	.086		12.20	3.70		15.90	19
Mirrors, unfinted, cut sheets, 1/8" thick		185	.086		8.25	3.70		11.95	14.70
1/4" thick		180	.089		13.20	3.80		17	20.50

84 20 - Polycarbonate

20.10 Thermoplastic

THERMOPLASTIC, clear, masked, cut sheets

1/8" thick	2 Glaz	170	.094	S.F.	9.70	4.02		13.72	16.75
3/16" thick		165	.097		11.10	4.15		15.25	18.50
1/4" thick		155	.103		12.50	4.41		16.91	20.50
3/8" thick		150	.107		22	4.56		26.56	31.50

84 30 - Vinyl Glass

30.10 Vinyl Sheets

VINYL SHEETS, Steel mesh reinforced, stock sizes

.090" thick	2 Glaz	170	.094	S.F.	13.30	4.02		17.32	21
.120" thick		170	.094		16.30	4.02		20.32	24
.250" thick		155	.103		22	4.41		26.41	30.50
For non-standard sizes, add					20%				

87 Glazing Surface Films

87 13 - Solar Control Films

87 13.10 Solar Films On Glass

SOLAR FILMS ON GLASS (glass not included)

Minimum	G	2 Glaz	180	.089	S.F.	6.60	3.80	10.40	13
Maximum	G	"	225	.071	"	14.70	3.04	17.74	21

87 23 - Safety and Security Films

87 23.13 Safety Films

SAFETY FILMS

Window protection film, controls blast damage	G	2 Glaz	80	.200	S.F.	6.60	8.55	15.15	20
---	---	--------	----	------	------	------	------	-------	----

87 23.16 Security Films

SECURITY FILMS, clear, 32000 psi tensile strength, adhered to glass

.002" thick, daylight installation		H-2	950	.025	S.F.	2.25	1.02	3.27	4.03
.004" thick, daylight installation		R088110-10	800	.030		2.80	1.21	4.01	4.92
.006" thick, daylight installation			700	.034		3	1.38	4.38	5.40

08 87 Glazing Surface Films

08 87 23 - Safety and Security Films

08 87 23.16 Security Films		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl
							Labor	Equipment		
0210	Install for anchorage	H-2	600	.040	S.F.	3.33	1.61		4.94	
0400	.007" thick, daylight installation		600	.040		4	1.61		5.61	
0410	Install for anchorage		500	.048		4.44	1.93		6.37	
0500	.008" thick, daylight installation		500	.048		4.50	1.93		6.43	
0510	Install for anchorage		500	.048		5	1.93		6.93	
0600	.015" thick, daylight installation		400	.060		8	2.41		10.41	
0610	Install for anchorage		400	.060		5	2.41		7.41	
0900	Security film anchorage, mechanical attachment and cover plate	H-3	370	.043	L.F.	9.45	1.64		11.09	
0950	Security film anchorage, wet glaze structural caulking	1 Glaz	225	.036	"	.84	1.52		2.36	
1000	Adhered security film removal	1 Clab	275	.029	S.F.		1.02		1.02	

08 88 Special Function Glazing

08 88 40 - Acoustical Glass Units

08 88 40.10 Sound Reduction Units

0010	SOUND REDUCTION UNITS, 1 lite at 3/8", 1 lite at 3/16"									
0020	Far 1" thick	2 Glaz	100	.160	S.F.	33	6.85		39.85	
0100	Far 4" thick	"	80	.200	"	56	8.55		64.55	

08 88 56 - Ballistics-Resistant Glazing

08 88 56.10 Laminated Glass

0010	LAMINATED GLASS									
0020	Clear float .03" vinyl 1/4"	2 Glaz	90	.178	S.F.	11.75	7.60		19.35	
0100	3/8" thick		78	.205		21.50	8.75		30.25	
0200	.06" vinyl, 1/2" thick		65	.246		24.50	10.50		35	
1000	5/8" thick		90	.178		28.50	7.60		36.10	
2000	Bullet-resisting, 1-3/16" thick, to 15 S.F.		16	1		90	43		133	
2100	Over 15 S.F.		16	1		104	43		147	
2500	2-1/4" thick, to 15 S.F.		12	1.333		140	57		197	
2600	Over 15 S.F.		12	1.333		130	57		187	
2700	Level 2 (.357 magnum)		12	1.333		68	57		125	
2750	Level 3A (.44 magnum)		12	1.333		73.50	57		130.50	
2800	Level 4 (AK-47)		12	1.333		96	57		153	
2850	Level 5 (M-16)		12	1.333		107	57		164	
2900	Level 3 (7.62 Armor Piercing)		12	1.333		127	57		184	

08 91 Louvers

08 91 19 - Fixed Louvers

08 91 19.10 Aluminum Louvers

0010	ALUMINUM LOUVERS									
0020	Aluminum with screen, residential, 8" x 8"	1 Corp	38	.211	Ea.	13.50	9.30		22.80	
0100	12" x 12"		38	.211		15	9.30		24.30	
0200	12" x 18"		35	.229		19	10.10		29.10	
0250	14" x 24"		30	.267		26	11.75		37.75	
0300	18" x 24"		27	.296		29	13.05		42.05	
0500	24" x 30"		24	.333		40	14.70		54.70	
0700	Triangle, adjustable, small		20	.400		37.50	17.65		55.15	
0800	Large		15	.533		46.50	23.50		70	
1200	Extruded aluminum, see Section 23 37 15.40									
2100	Midget, aluminum, 3/4" deep, 1" diameter	1 Corp	85	.094	Ea.	.72	4.15		4.87	
2150	3" diameter		60	.133		2	5.90		7.90	

91 Louvers

1 19 – Fixed Louvers

19.10 Aluminum Louvers	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
4" diameter	1 Corp	50	.160	Ea.	3.64	7.05		10.69	14.85
6" diameter	↓	30	.267	↓	3.85	11.75		15.60	22.50

1 26 – Door Louvers

26.10 Steel Louvers, 18 Gauge, Fixed Blade

STEEL LOUVERS, 18 GAUGE, FIXED BLADE

12" x 12", with enamel or powder coat	1 Corp	20	.400	Ea.	69	17.65		86.65	103
18" x 12"	↓	20	.400	↓	83	17.65		100.65	119
18" x 18"		20	.400		84	17.65		101.65	120
24" x 12"		20	.400		92	17.65		109.65	128
24" x 18"		20	.400		126	17.65		143.65	166
24" x 24"		20	.400		131	17.65		148.65	171
12" x 12", galvanized		20	.400		60	17.65		77.65	93
18" x 12"		20	.400		67	17.65		84.65	101
24" x 12"		20	.400		83	17.65		100.65	119
24" x 24"	↓	20	.400	↓	121	17.65		138.65	160

95 Vents

95 13 – Soffit Vents

13.10 Wall Louvers

WALL LOUVERS									
Soffit vent, continuous, 3" wide, aluminum, mill finish	1 Corp	200	.040	L.F.	.52	1.76		2.28	3.28
Baked enamel finish		200	.040	"	.57	1.76		2.33	3.34
Under eaves vent, aluminum, mill finish, 16" x 4"		48	.167	Ea.	1.84	7.35		9.19	13.30
16" x 8"	↓	48	.167	"	2.14	7.35		9.49	13.65

95 16 – Wall Vents

16.10 Louvers

LOUVERS									
Redwood, 2'-0" diameter, full circle	1 Corp	16	.500	Ea.	174	22		196	225
Half circle		16	.500		192	22		214	245
Octagonal		16	.500		132	22		154	179
Triangular, 5/12 pitch, 5'-0" at base		16	.500		194	22		216	247
Vinyl gable vent, 8" x 8"		38	.211		12.60	9.30		21.90	28
12" x 12"		38	.211		24	9.30		33.30	41
12" x 18"		35	.229		31	10.10		41.10	49.50
18" x 24"	↓	30	.267	↓	38	11.75		49.75	60

Division Notes

[illegible]

Estimating Tips

General

Room Finish Schedule: A complete set of plans should contain a room finish schedule. If one is not available, it would be well worth the time and effort to obtain one.

20 00 Plaster and Gypsum Board

Plaster is estimated by the square yard plus a 5% allowance for waste. Furring, channels, and accessories are measured by the linear foot. An extra foot could be allowed for each accessory miter or stop.

Plaster is also estimated by the square yard. Deductions for openings vary by preference, from zero deduction to 50% of 1 openings over 2 feet in width. The estimator should allow one extra square foot for each linear foot of horizontal interior or exterior angle indicated below the ceiling level. Also, double the areas of small radius work.

Drywall accessories, studs, back, and acoustical caulking are all measured by the linear foot. Drywall taping is figured by the square foot. Gypsum wallboard is estimated by the square foot. No material deductions should be made for door or window openings under 2 S.F.

09 60 00 Flooring

- Tile and terrazzo areas are taken off on a square foot basis. Trim and base materials are measured by the linear foot. Accent tiles are listed per each. Two basic methods of installation are used. Mud set is approximately 30% more expensive than thin set. In terrazzo work, be sure to include the linear footage of embedded decorative strips, grounds, machine rubbing, and power cleanup.
- Wood flooring is available in strip, parquet, or block configuration. The latter two types are set in adhesives with quantities estimated by the square foot. The laying pattern will influence labor costs and material waste. In addition to the material and labor for laying wood floors, the estimator must make allowances for sanding and finishing these areas unless the flooring is prefinished.
- Sheet flooring is measured by the square yard. Roll widths vary, so consideration should be given to use the most economical width, as waste must be figured into the total quantity. Consider also the installation methods available, direct glue down or stretched.

09 70 00 Wall Finishes

- Wall coverings are estimated by the square foot. The area to be covered is measured, length by height of wall above baseboards, to calculate the square footage of each wall. This figure is divided by the number of square feet in the single roll which is being

used. Deduct, in full, the areas of openings such as doors and windows. Where a pattern match is required allow 25%-30% waste.

09 80 00 Acoustic Treatment

- Acoustical systems fall into several categories. The takeoff of these materials should be by the square foot of area with a 5% allowance for waste. Do not forget about scaffolding, if applicable, when estimating these systems.

09 90 00 Painting and Coating

- A major portion of the work in painting involves surface preparation. Be sure to include cleaning, sanding, filling, and masking costs in the estimate.
- Protection of adjacent surfaces is not included in painting costs. When considering the method of paint application, an important factor is the amount of protection and masking required. These must be estimated separately and may be the determining factor in choosing the method of application.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

09 01 Maintenance of Finishes

09 01 60 – Maintenance of Flooring

09 01 60.10 Carpet Maintenance

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	To Incl
0010	CARPET MAINTENANCE									
0020	Steam clean, per cleaning, minimum	1 Clab	3000	.003	S.F.	.07	.09		.16	
0500	Maximum	"	2000	.004	"	.12	.14		.26	

09 01 70 – Maintenance of Wall Finishes

09 01 70.10 Gypsum Wallboard Repairs

0010	GYPSUM WALLBOARD REPAIRS									
0100	Fill and sand, pin/nail holes	1 Carp	960	.008	Ea.		.37		.37	
0110	Screw head pops		480	.017			.74		.74	
0120	Dents, up to 2" square		48	.167		.01	7.35		7.36	
0130	2" to 4" square		24	.333		.03	14.70		14.73	
0140	Cut square, patch, sand and finish, holes, up to 2" square		12	.667		.04	29.50		29.54	
0150	2" to 4" square		11	.727		.09	32		32.09	
0160	4" to 8" square		10	.800		.21	35.50		35.71	
0170	8" to 12" square		8	1		.40	44		44.40	
0180	12" to 32" square		6	1.333		1.31	59		60.31	
0210	16" by 48"		5	1.600		2.17	70.50		72.67	
0220	32" by 48"		4	2		3.20	88		91.20	
0230	48" square		3.50	2.286		4.48	101		105.48	
0240	60" square		3.20	2.500	▼	7.60	110		117.60	
0500	Skim coat surface with joint compound		1600	.005	S.F.	.03	.22		.25	
0510	Prepare, retape and refinish joints	▼	60	.133	L.F.	.59	5.90		6.49	

09 05 Common Work Results for Finishes

09 05 05 – Selective Finishes Demolition

09 05 05.10 Selective Demolition, Ceilings

0010	SELECTIVE DEMOLITION, CEILINGS	R024119-10								
0200	Ceiling, drywall, furred and nailed or screwed	2 Clab	800	.020	S.F.		.70		.70	
0220	On metal frame		760	.021			.74		.74	
0240	On suspension system, including system		720	.022			.78		.78	
1000	Plaster, lime and horse hair, on wood lath, incl. lath		700	.023			.80		.80	
1020	On metal lath		570	.028			.99		.99	
1100	Gypsum, on gypsum lath		720	.022			.78		.78	
1120	On metal lath		500	.032			1.12		1.12	
1200	Suspended ceiling, mineral fiber, 2' x 2' or 2' x 4'		1500	.011			.37		.37	
1250	On suspension system, incl. system		1200	.013			.47		.47	
1500	Tile, wood fiber, 12" x 12", glued		900	.018			.62		.62	
1540	Stapled		1500	.011			.37		.37	
1580	On suspension system, incl. system		760	.021			.74		.74	
2000	Wood, tongue and groove, 1" x 4"		1000	.016			.56		.56	
2040	1" x 8"		1100	.015			.51		.51	
2400	Plywood or wood fiberboard, 4' x 8' sheets	▼	1200	.013	▼		.47		.47	

09 05 05.20 Selective Demolition, Flooring

0010	SELECTIVE DEMOLITION, FLOORING	R024119-10								
0200	Brick with mortar	2 Clab	475	.034	S.F.		1.18		1.18	
0400	Carpet, banded, including surface scraping		2000	.008			.28		.28	
0440	Scrim applied		8000	.002			.07		.07	
0480	Tackless		9000	.002			.06		.06	
0550	Carpet tile, releasable adhesive		5000	.003			.11		.11	
0560	Permanent adhesive		1850	.009			.30		.30	
0600	Composition, acrylic or epoxy	▼	400	.040	▼		1.40		1.40	

05 Common Work Results for Finishes

05 05 – Selective Finishes Demolition

5 05.20 Selective Demolition, Flooring		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total	Total Ind O&P
							Labor	Equipment			
Concrete, scoriify skin		A-1A	225	.036	S.F.		1.61	.94		2.55	3.53
Resilient, sheet goods		2 Clob	1400	.011			.40			.40	.62
For gym floors		"	900	.018			.62			.62	.96
Vinyl or rubber cove base		1 Clob	1000	.008	L.F.		.28			.28	.43
Vinyl or rubber cove base, molded corner		"	1000	.008	Eo.		.28			.28	.43
For glued and caulked installation, odd to labor							50%				
Vinyl composition tile, 12" x 12"		2 Clob	1000	.016	S.F.		.56			.56	.86
Tile, ceramic, thin set			675	.024			.83			.83	1.28
Mud set			625	.026			.90			.90	1.38
Marble, slate, thin set			675	.024			.83			.83	1.28
Mud set			625	.026			.90			.90	1.38
Terrozzo, thin set			450	.036			1.25			1.25	1.92
Mud set			425	.038			1.32			1.32	2.03
Terrazzo, cast in place			300	.053			1.87			1.87	2.88
Wood, block, on end		1 Corp	400	.020			.88			.88	1.36
Parquet			450	.018			.78			.78	1.21
Strip flooring, interior, 2-1/4" x 25/32" thick			325	.025			1.09			1.09	1.67
Exterior, porch flooring, 1" x 4"			220	.036			1.60			1.60	2.47
Subfloor, tongue and groove, 1" x 6"			325	.025			1.09			1.09	1.67
1" x 8"			430	.019			.82			.82	1.26
1" x 10"			520	.015			.68			.68	1.04
Plywood, nailed			600	.013			.59			.59	.90
Glued and nailed			400	.020			.88			.88	1.36
Hardboard, 1/4" thick			760	.011			.46			.46	.71
Remove flooring, bead blast, minimum		A-1A	1000	.008			.36	.21		.57	.79
Maximum			400	.020			.91	.53		1.44	1.98
Mastic only			1500	.005			.24	.14		.38	.52

05 05.30 Selective Demolition, Walls and Partitions

SELECTIVE DEMOLITION, WALLS AND PARTITIONS		R024119-10									
Walls, concrete, reinforced		B-39	120	.400	C.F.			14.80	1.74	16.54	24.50
Plain		"	160	.300				11.10	1.31	12.41	18.50
Brick, 4" to 12" thick		B-9	220	.182				6.45	.95	7.40	11
Concrete block, 4" thick			1000	.040	S.F.			1.42	.21	1.63	2.41
8" thick			810	.049				1.75	.26	2.01	2.98
Exterior stucco 1" thick over mesh			3200	.013				.44	.07	.51	.75
Drywall, nailed or screwed		1 Clob	1000	.008				.28		.28	.43
2 layers			400	.020				.70		.70	1.08
Glued and nailed			900	.009				.31		.31	.48
Fiberboard, nailed			900	.009				.31		.31	.48
Glued and nailed			800	.010				.35		.35	.54
Plenum barrier, sheet lead			300	.027				.94		.94	1.44
Movable walls, metal, 5' high			300	.027				.94		.94	1.44
8' high			400	.020				.70		.70	1.08
Metal or wood studs, finish 2 sides, fiberboard		B-1	520	.046				1.65		1.65	2.54
Loth and plaster			260	.092				3.30		3.30	5.10
Plasterboard (drywall)			520	.046				1.65		1.65	2.54
Plywood			450	.053				1.91		1.91	2.93
Panelling, 4' x 8' sheets		1 Clob	475	.017				.59		.59	.91
Plaster, lime and horsehair, on wood loth			400	.020				.70		.70	1.08
On metal loth			335	.024				.84		.84	1.29
Gypsum or perlite, on gypsum loth			410	.020				.68		.68	1.05
On metal loth			300	.027				.94		.94	1.44

09 05 Common Work Results for Finishes

09 05 05 – Selective Finishes Demolition

09 05 05.30 Selective Demolition, Walls and Partitions		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			T Inc
							Labor	Equipment	Total	
3450	Plaster, interior gypsum, acoustic, or cement	1 Clab	60	.133	S.Y.		4.68		4.68	
3500	Stucco, on masonry		145	.055			1.94		1.94	
3510	Commercial 3-coat		80	.100			3.51		3.51	
3520	Interior stucco		25	.320			11.25		11.25	
3600	Plywood, one side	8-1	1500	.016	S.F.		.57		.57	
3750	Terra cotta block and plaster, to 6" thick		175	.137			4.91		4.91	
3760	Tile, ceramic, on walls, thin set	1 Clab	300	.027			.94		.94	
3765	Mud set		250	.032			1.12		1.12	
3800	Toilet partitions, slate or marble		5	1.600	Ea.		56		56	
3820	Metal or plastic		8	1	"		35		35	
5000	Wallcovering, vinyl	1 Pape	700	.011	S.F.		.44		.44	
5010	With release agent		1500	.005			.21		.21	
5025	Wallpaper, 2 layers or less, by hand		250	.032			1.23		1.23	
5035	3 layers or more		165	.048			1.87		1.87	
5040	Designer		480	.017			.64		.64	

09 21 Plaster and Gypsum Board Assemblies

09 21 13 – Plaster Assemblies

09 21 13.10 Plaster Partition Wall

PLASTER PARTITION WALL										
0010	Stud walls, 3.4 lb. metal lath, 3 coat gypsum plaster, 2 sides									
0400										
0600	2" x 4" wood studs, 16" O.C.	J-2	315	.152	S.F.	3.41	5.90	.42	9.73	
0700	2-1/2" metal studs, 25 ga., 12" O.C.		325	.148		3.15	5.70	.40	9.25	
0800	3-5/8" metal studs, 25 ga., 16" O.C.		320	.150		3.17	5.80	.41	9.38	
0900	Gypsum lath, 2 coat vermiculite plaster, 2 sides									
1000	2" x 4" wood studs, 16" O.C.	J-2	355	.135	S.F.	3.80	5.20	.37	9.37	
1200	2-1/2" metal studs, 25 ga., 12" O.C.		365	.132		3.37	5.10	.36	8.83	
1300	3-5/8" metal studs, 25 ga., 16" O.C.		360	.133		3.46	5.15	.36	8.97	

09 21 16 – Gypsum Board Assemblies

09 21 16.23 Gypsum Board Shaft Wall Assemblies

GYPSUM BOARD SHAFT WALL ASSEMBLIES										
0010										
0020	Cavity type on 25 ga. J-track & C-H studs, 24" O.C.									
0030	1" thick coreboard wall liner on shaft side									
0040	2-hour assembly with double layer									
0060	5/8" fire rated gypsum board on room side	2 Carp	220	.073	S.F.	1.54	3.21		4.75	
0100	3-hour assembly with triple layer									
0300	5/8" fire rated gypsum board on room side	2 Carp	180	.089	S.F.	1.29	3.92		5.21	
0400	4-hour assembly, 1" coreboard, 5/8" fire rated gypsum board									
0600	and 3/4" galv. metal furring channels, 24" O.C., with									
0700	Double layer 5/8" fire rated gypsum board on room side	2 Carp	110	.145	S.F.	1.25	6.40		7.65	
0900	For taping & finishing, add per side	1 Carp	1050	.008	"	.05	.34		.39	
1000	For insulation, see Section 07 21									
5200	For work over 8' high, add	2 Carp	3060	.005	S.F.		.23		.23	
5300	For distribution cast over 3 stories high, add per story	"	6100	.003	"		.12		.12	

09 21 16.33 Partition Wall

PARTITION WALL Stud wall, 8' to 12' high										
0010										
0050	1/2", interior, gypsum board, std, tape & finish 2 sides									
0500	Installed on and incl., 2" x 4" wood studs, 16" O.C.	2 Carp	310	.052	S.F.	.90	2.28		3.18	
1000	Metal studs, NLB, 25 ga., 16" O.C., 3-5/8" wide		350	.046		.90	2.02		2.92	
1200	6" wide		330	.048		1.08	2.14		3.22	

21 Plaster and Gypsum Board Assemblies

1 16 - Gypsum Board Assemblies

16.33 Partition Wall	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
Water resistant, on 2" x 4" wood studs, 16" O.C.	2 Corp	310	.052	S.F.	1.16	2.28		3.44	4.78
Metal studs, NLB, 25 go., 16" O.C., 3-5/8" wide		350	.046		1.16	2.02		3.18	4.38
6" wide		330	.048		1.34	2.14		3.48	4.77
Fire res., 2 layers, 1-1/2 hr., on 2" x 4" wood studs, 16" O.C.		210	.076		1.50	3.36		4.86	6.80
Metal studs, NLB, 25 go., 16" O.C., 3-5/8" wide		250	.064		1.50	2.82		4.32	6
6" wide		230	.070		1.68	3.07		4.75	6.55
Fire & water res., 2 layers, 1-1/2 hr., 2" x 4" studs, 16" O.C.		210	.076		1.50	3.36		4.86	6.80
Metal studs, NLB, 25 go., 16" O.C., 3-5/8" wide		250	.064		1.50	2.82		4.32	6
6" wide	▼	230	.070	▼	1.68	3.07		4.75	6.55
5/8", interior, gypsum board, standard, top & finish 2 sides									
Installed on and including 2" x 4" wood studs, 16" O.C.	2 Corp	300	.053	S.F.	.96	2.35		3.31	4.68
24" O.C.		330	.048		.88	2.14		3.02	4.26
Metal studs, NLB, 25 go., 16" O.C., 3-5/8" wide		340	.047		.96	2.08		3.04	4.25
6" wide		320	.050		1.14	2.21		3.35	4.65
24" O.C., 3-5/8" wide		360	.044		.86	1.96		2.82	3.97
6" wide		340	.047		1	2.08		3.08	4.29
Water resistant, on 2" x 4" wood studs, 16" O.C.		300	.053		1.32	2.35		3.67	5.05
24" O.C.		330	.048		1.24	2.14		3.38	4.65
Metal studs, NLB, 25 go. 16" O.C., 3-5/8" wide		340	.047		1.32	2.08		3.40	4.64
6" wide		320	.050		1.50	2.21		3.71	5.05
24" O.C., 3-5/8" wide		360	.044		1.22	1.96		3.18	4.37
6" wide		340	.047		1.36	2.08		3.44	4.68
Fire resistant, 2 layers, 2 hr., on 2" x 4" wood studs, 16" O.C.		205	.078		1.46	3.44		4.90	6.90
24" O.C.		235	.068		1.46	3		4.46	6.20
Metal studs, NLB, 25 go., 16" O.C., 3-5/8" wide		245	.065		1.59	2.88		4.47	6.20
6" wide		225	.071		1.72	3.14		4.86	6.70
24" O.C., 3-5/8" wide		265	.060		1.44	2.66		4.10	5.70
6" wide		245	.065		1.58	2.88		4.46	6.15
Fire & water resistant, 2 layers, 2 hr., 2" x 4" studs, 16" O.C.		205	.078		1.54	3.44		4.98	7
24" O.C.		235	.068		1.46	3		4.46	6.20
Metal studs, NLB, 25 go., 16" O.C., 3-5/8" wide		245	.065		1.54	2.88		4.42	6.10
6" wide		225	.071		1.72	3.14		4.86	6.70
24" O.C., 3-5/8" wide		265	.060		1.44	2.66		4.10	5.70
6" wide	▼	245	.065	▼	1.58	2.88		4.46	6.15
1/2" blueboard, mesh tape both sides									
Installed on and including 2" x 4" wood studs, 16" O.C.	2 Corp	300	.053	S.F.	.96	2.35		3.31	4.68
Metal studs, NLB, 25 go., 16" O.C., 3-5/8" wide		340	.047		.96	2.08		3.04	4.25
6" wide	▼	320	.050	▼	1.14	2.21		3.35	4.65
Exterior, 1/2" gypsum sheathing, 1/2" gypsum finished, interior, including foil faced insulation, metal studs, 20 go.									
16" O.C., 3-5/8" wide	2 Corp	290	.055	S.F.	1.54	2.43		3.97	5.45
6" wide	▼	270	.059	▼	1.77	2.61		4.38	5.95
Partitions, for work over 8' high, add	▼	1530	.010	▼		.46		.46	.71

09 22 Supports for Plaster and Gypsum Board

09 22 03 – Fastening Methods for Finishes

09 22 03.20 Drilling Plaster/Drywall

DRILLING PLASTER/DRYWALL

	Crew	Daily Output	Labor Hours	Unit	Material	2012 Base Costs		Total	In
						Labor	Equipment		
0010									
1100									
1200									
1300									
1400									
1500									
1600									
1700									
1800									
1900									

09 22 13 – Metal Furring

09 22 13.13 Metal Channel Furring

METAL CHANNEL FURRING

0010									
0030									
0050									
0070									
0100									
0300									
0400									
0600									
0700									
0900									
0930									
0940									
0950									
0960									
0970									
0980									
1000									
1200									
1300									
1500									
1600									
1800									
1920									
1940									
1950									
1960									
1970									
1980									

09 22 16 – Non-Structural Metal Framing

09 22 16.13 Non-Structural Metal Stud Framing

NON-STRUCTURAL METAL STUD FRAMING

0010									
1600									
1610									
1620									
1630									
1640									
1650									
1660									
1670									
1680									

22 Supports for Plaster and Gypsum Board

2 16 – Non-Structural Metal Framing

16.13 Non-Structural Metal Stud Framing	Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
24" O.C.	1 Corp	906	.009	S.F.	.43	.39		.82	1.08
20 ga. studs, 1-5/8" wide, 16" O.C.		494	.016		.44	.71		1.15	1.58
24" O.C.		763	.010		.33	.46		.79	1.07
2-1/2" wide, 16" O.C.		488	.016		.50	.72		1.22	1.66
24" O.C.		750	.011		.38	.47		.85	1.14
3-5/8" wide, 16" O.C.		481	.017		.58	.73		1.31	1.77
24" O.C.		738	.011		.43	.48		.91	1.22
4" wide, 16" O.C.		475	.017		.69	.74		1.43	1.89
24" O.C.		738	.011		.51	.48		.99	1.31
6" wide, 16" O.C.		469	.017		.83	.75		1.58	2.07
24" O.C.		725	.011		.62	.49		1.11	1.43
Non-load bearing, galv., 10' high, 25 ga. 1-5/8" wide, 16" O.C.		495	.016		.27	.71		.98	1.40
24" O.C.		760	.011		.20	.46		.66	.93
2-1/2" wide, 16" O.C.		490	.016		.31	.72		1.03	1.45
24" O.C.		750	.011		.23	.47		.70	.97
3-5/8" wide, 16" O.C.		480	.017		.37	.74		1.11	1.54
24" O.C.		740	.011		.27	.48		.75	1.03
4" wide, 16" O.C.		475	.017		.43	.74		1.17	1.61
24" O.C.		740	.011		.31	.48		.79	1.07
6" wide, 16" O.C.		470	.017		.55	.75		1.30	1.76
24" O.C.		725	.011		.40	.49		.89	1.19
20 ga. studs, 1-5/8" wide, 16" O.C.		395	.020		.42	.89		1.31	1.83
24" O.C.		610	.013		.31	.58		.89	1.23
2-1/2" wide, 16" O.C.		390	.021		.48	.90		1.38	1.92
24" O.C.		600	.013		.35	.59		.94	1.29
3-5/8" wide, 16" OC		385	.021		.55	.92		1.47	2.01
24" O.C.		590	.014		.41	.60		1.01	1.37
4" wide, 16" O.C.		380	.021		.65	.93		1.58	2.15
24" O.C.		590	.014		.48	.60		1.08	1.45
6" wide, 16" O.C.		375	.021		.78	.94		1.72	2.31
24" O.C.		580	.014		.58	.61		1.19	1.57
Non-load bearing, galv., 12' high, 25 ga. 1-5/8" wide, 16" O.C.		413	.019		.26	.85		1.11	1.59
24" O.C.		633	.013		.19	.56		.75	1.07
2-1/2" wide, 16" O.C.		408	.020		.30	.86		1.16	1.66
24" O.C.		625	.013		.22	.56		.78	1.11
3-5/8" wide, 16" O.C.		400	.020		.35	.88		1.23	1.75
24" O.C.		617	.013		.26	.57		.83	1.16
4" wide, 16" O.C.		396	.020		.41	.89		1.30	1.82
24" O.C.		617	.013		.30	.57		.87	1.21
6" wide, 16" O.C.		392	.020		.53	.90		1.43	1.96
24" O.C.		604	.013		.38	.58		.96	1.32
20 ga. studs, 1-5/8" wide, 16" O.C.		329	.024		.40	1.07		1.47	2.09
24" O.C.		508	.016		.29	.69		.98	1.39
2-1/2" wide, 16" O.C.		325	.025		.46	1.09		1.55	2.17
24" O.C.		500	.016		.33	.71		1.04	1.46
3-5/8" wide, 16" O.C.		321	.025		.53	1.10		1.63	2.27
24" O.C.		492	.016		.38	.72		1.10	1.52
4" wide, 16" O.C.		317	.025		.62	1.11		1.73	2.39
24" O.C.		492	.016		.45	.72		1.17	1.60
6" wide, 16" O.C.		313	.026		.75	1.13		1.88	2.55
24" O.C.	▼	483	.017	▼	.54	.73		1.27	1.72
Load bearing studs, see Section 05 41 13.30									

09 22 Supports for Plaster and Gypsum Board

09 22 26 – Suspension Systems

09 22 26.13 Ceiling Suspension Systems		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Ind
0010	CEILING SUSPENSION SYSTEMS for gypsum board or plaster									
8000	Suspended ceilings, including carriers									
8200	1-1/2" carriers, 24" O.C. with:									
8300	7/8" channels, 16" O.C.	1 Lath	275	.029	S.F.	.53	1.14		1.67	
8320	24" O.C.		310	.026		.43	1.01		1.44	
8400	1-5/8" channels, 16" O.C.		205	.039		.64	1.53		2.17	
8420	24" O.C.	▼	250	.032	▼	.50	1.26		1.76	
8600	2" carriers, 24" O.C. with:									
8700	7/8" channels, 16" O.C.	1 Lath	250	.032	S.F.	.56	1.26		1.82	
8720	24" O.C.		285	.028		.45	1.10		1.55	
8800	1-5/8" channels, 16" O.C.		190	.042		.66	1.65		2.31	
8820	24" O.C.	▼	225	.036	▼	.52	1.40		1.92	

09 22 36 – Lath

09 22 36.13 Gypsum Lath										
0010	GYPSUM LATH	R092000-50								
0020	Plain or perforated, nailed, 3/8" thick	1 Lath	85	.094	S.Y.	3.87	3.69		7.56	
0100	1/2" thick		80	.100		4.50	3.93		8.43	
0300	Clipped to steel studs, 3/8" thick		75	.107		3.87	4.19		8.06	
0400	1/2" thick		70	.114		4.50	4.49		8.99	
1500	For ceiling installations, add		216	.037			1.45		1.45	
1600	For columns and beams, add	▼	170	.047	▼		1.85		1.85	

09 22 36.23 Metal Lath

09 22 36.23 Metal Lath										
0010	METAL LATH	R092000-50								
0020	Diamond, expanded, 2.5 lb. per S.Y., painted				S.Y.	3.44			3.44	
0100	Galvanized					3.02			3.02	
0300	3.4 lb. per S.Y., painted					3.60			3.60	
0400	Galvanized					4.46			4.46	
0600	For 15# asphalt sheathing paper, add					.51			.51	
0900	Flat rib, 1/8" high, 2.75 lb., painted					3.14			3.14	
1000	Fail backed					2.83			2.83	
1200	3.4 lb. per S.Y., painted					4			4	
1300	Galvanized					3.50			3.50	
1500	For 15# asphalt sheathing paper, add					.51			.51	
1800	High rib, 3/8" high, 3.4 lb. per S.Y., painted					4.84			4.84	
1900	Galvanized				▼	4.84			4.84	
2400	3/4" high, painted, .60 lb. per S.F.				S.F.	.50			.50	
2500	.75 lb. per S.F.				"	1.08			1.08	
2800	Stucco mesh, painted, 3.6 lb.				S.Y.	3.51			3.51	
3000	K-lath, perforated, absorbent paper, regular					4.42			4.42	
3100	Heavy duty					5.20			5.20	
3300	Waterproof, heavy duty, grade B backing					5.10			5.10	
3400	Fire resistant backing					5.65			5.65	
3600	2.5 lb. diamond painted, on wood framing, on walls	1 Lath	85	.094		3.44	3.69		7.13	
3700	On ceilings		75	.107		3.44	4.19		7.63	
3900	3.4 lb. diamond painted, on wood framing, on walls		80	.100		4	3.93		7.93	
4000	On ceilings		70	.114		4	4.49		8.49	
4200	3.4 lb. diamond painted, wired to steel framing		75	.107		4	4.19		8.19	
4300	On ceilings		60	.133		4	5.25		9.25	
4500	Columns and beams, wired to steel		40	.200		4	7.85		11.85	
4600	Cornices, wired to steel		35	.229		4	8.95		12.95	
4800	Screwed to steel studs, 2.5 lb.	▼	80	.100	▼	3.44	3.93		7.37	

22 Supports for Plaster and Gypsum Board

22 36 - Lath

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
22 36.23 Metal Lath										
	3.4 lb.	1 Lath	75	.107	S.Y.	3.60	4.19		7.79	10.10
	Rib lath, painted, wired to steel, on walls, 2.5 lb.		75	.107		3.14	4.19		7.33	9.60
	3.4 lb.		70	.114		4.84	4.49		9.33	11.90
	4.0 lb.		65	.123		5.70	4.83		10.53	13.35
	For self-furring lath, add					.11			.11	.12
	Suspended ceiling system, incl. 3.4 lb. diamond lath, painted	1 Lath	15	.533		3.39	21		24.39	34
	Galvanized	"	15	.533		6.50	21		27.50	37.50
	Hollow metal stud partitions, 3.4 lb. painted lath both sides									
	Non-load bearing, 25 ga., w/rib lath 2-1/2" studs, 12" O.C.	1 Lath	20.30	.394	S.Y.	13.25	15.45		28.70	37
	16" O.C.		21.10	.379		12.45	14.90		27.35	35.50
	24" O.C.		22.70	.352		11.75	13.85		25.60	33.50
	3-5/8" studs, 16" O.C.		19.50	.410		13	16.10		29.10	38
	24" O.C.		20.40	.392		12.10	15.40		27.50	36
	4" studs, 16" O.C.		20.40	.392		13.50	15.40		28.90	37.50
	24" O.C.		21.60	.370		12.50	14.55		27.05	35.50
	6" studs, 16" O.C.		19.50	.410		14.65	16.10		30.75	39.50
	24" O.C.		21.10	.379		13.30	14.90		28.20	36.50
	L.B. partitions, 16 ga., w/rib lath, 2-1/2" studs, 16" O.C.		20	.400		14.50	15.70		30.20	39
	3-5/8" studs, 16 ga.		19.70	.406		16.35	15.95		32.30	41.50
	4" studs, 16 ga.		19.50	.410		17	16.10		33.10	42
	6" studs, 16 ga.		18.70	.428		19.95	16.80		36.75	46.50

22 36.43 Security Mesh

SECURITY MESH , expanded metal, flat, screwed to framing										
	On walls, 3/4", 1.76 lb./S.F.	2 Carp	1500	.011	S.F.	1.82	.47		2.29	2.72
	1-1/2", 1.14 lb./S.F.		1600	.010		1.54	.44		1.98	2.37
	On ceilings, 3/4", 1.76 lb./S.F.		1350	.012		1.82	.52		2.34	2.80
	1-1/2", 1.14 lb./S.F.		1450	.011		1.54	.49		2.03	2.44

22 36.83 Accessories, Plaster

ACCESSORIES, PLASTER										
	Casing bead, expanded flange, galvanized	1 Lath	2.70	2.963	C.L.F.	53	116		169	230
	Foundation weep screed, galvanized	"	2.70	2.963		52	116		168	228
	Channels, cold rolled, 16 ga., 3/4" deep, galvanized					34			34	37.50
	1-1/2" deep, 16 ga., galvanized					45.50			45.50	50
	Corner bead, expanded bullnose, 3/4" radius, #10, galvanized	1 Lath	2.60	3.077		27.50	121		148.50	207
	#1, galvanized		2.55	3.137		46.50	123		169.50	232
	Expanded wing, 2-3/4" wide, #1, galvanized		2.65	3.019		34	118		152	212
	Inside corner (corner rite), 3" x 3", painted		2.60	3.077		27	121		148	207
	Strip-ex, 4" wide, painted		2.55	3.137		34.50	123		157.50	219
	Expansion joint, 3/4" grounds, limited expansion, galv., 1 piece		2.70	2.963		92	116		208	272
	Extreme expansion, galvanized, 2 piece		2.60	3.077		149	121		270	340

09 23 Gypsum Plastering

09 23 13 - Acoustical Gypsum Plastering

09 23 13.10 Perlite or Vermiculite Plaster		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Unit
PERLITE OR VERMICULITE PLASTER							Labor	Equipment		
0010	PERLITE OR VERMICULITE PLASTER									
0020	In 100 lb. bags, under 200 bags				Bog	14.55			14.55	
0100	Over 200 bags				"	13.30			13.30	
0300	2 coats, no lath included, on walls	J-1	92	.435	S.Y.	3.78	16.75	1.42	21.95	
0400	On ceilings	"	79	.506		3.78	19.50	1.66	24.94	
0600	On and incl. 3/8" gypsum lath, on metal studs	J-2	84	.571		8.60	22	1.56	32.16	
0700	On ceilings	"	70	.686		8.60	26.50	1.87	36.97	
0900	3 coats, no lath included, on walls	J-1	74	.541		6.30	21	1.77	29.07	
1000	On ceilings	"	63	.635		6.30	24.50	2.08	32.88	
1200	On and incl. pointed metal lath, on metal studs	J-2	72	.667		11.15	26	1.82	38.97	
1300	On ceilings		61	.787		11.15	30.50	2.15	43.80	
1500	On and incl. suspended metal lath ceiling		37	1.297		9.70	50	3.54	63.24	
1700	For irregular or curved surfaces, add to above						30%			
1800	For columns and beams, add to above						50%			
1900	For soffits, add to ceiling prices						40%			

09 23 20 - Gypsum Plaster

09 23 20.10 Gypsum Plaster On Walls and Ceilings

0010	GYPSPUM PLASTER ON WALLS AND CEILINGS									
0020	80# bag, less than 1 ton				Bog	14.80			14.80	
0100	Over 1 ton				"	13.05			13.05	
0300	2 coats, no lath included, on walls	J-1	105	.381	S.Y.	3.57	14.65	1.25	19.47	
0400	On ceilings	"	92	.435		3.57	16.75	1.42	21.74	
0600	On and incl. 3/8" gypsum lath on steel, on walls	J-2	97	.495		7.45	19.10	1.35	27.90	
0700	On ceilings	"	83	.578		7.45	22.50	1.58	31.53	
0900	3 coats, no lath included, on walls	J-1	87	.460		5.15	17.70	1.50	24.35	
1000	On ceilings	"	78	.513		5.15	19.75	1.68	26.58	
1200	On and including pointed metal lath, on wood studs	J-2	86	.558		10.05	21.50	1.52	33.07	
1300	On ceilings	"	76.50	.627		10.05	24	1.71	35.76	
1600	For irregular or curved surfaces, add						30%			
1800	For columns & beams, add						50%			

09 23 20.20 Gauging Plaster

0010	GAUGING PLASTER									
0020	100 lb. bags, less than 1 ton				Bog	18.20			18.20	
0100	Over 1 ton				"	15.85			15.85	

09 23 20.30 Keenes Cement

0010	KEENES CEMENT									
0020	In 100 lb. bags, less than 1 ton				Bog	22			22	
0100	Over 1 ton				"	21			21	
0300	Finish only, add to plaster prices, standard	J-1	215	.186	S.Y.	2	7.15	.61	9.76	
0400	High quality	"	144	.278	"	2.03	10.70	.91	13.64	

24 Cement Plastering

4 23 - Cement Stucco

23.40 Stucco	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
						Labor	Equipment	Total	
STUCCO									
R092000-50									
3 coats 1" thick, float finish, with mesh, on wood frame	J-2	63	.762	S.Y.	5.80	29.50	2.08	37.38	52.50
On masonry construction, no mesh incl.	J-1	67	.597		2.28	23	1.95	27.23	39
For trowel finish, add	1 Plas	170	.047			1.90		1.90	2.84
For 3/4" thick, on masonry, deduct	J-1	880	.045		.61	1.75	.15	2.51	3.45
For coloring and special finish, add, minimum		685	.058		.39	2.25	.19	2.83	4.01
Maximum	↓	200	.200		1.36	7.70	.65	9.71	13.75
For soffits, add	J-2	155	.310		2.11	11.95	.85	14.91	21
Exterior stucco, with bonding agent, 3 coats, on walls, no mesh incl.	J-1	200	.200		3.54	7.70	.65	11.89	16.15
Ceilings		180	.222		3.54	8.55	.73	12.82	17.50
Beams		80	.500		3.54	19.25	1.64	24.43	34.50
Columns	↓	100	.400		3.54	15.40	1.31	20.25	28.50
Mesh, pointed, nailed to wood, 1.8 lb.	1 Loth	60	.133		5	5.25		10.25	13.20
3.6 lb.		55	.145		3.51	5.70		9.21	12.25
Wired to steel, pointed, 1.8 lb.		53	.151		5	5.90		10.90	14.20
3.6 lb.	↓	50	.160	↓	3.51	6.30		9.81	13.05

26 Veneer Plastering

26 13 - Gypsum Veneer Plastering

5 13.20 Blueboard

BLUEBOARD For use with thin coat plaster application (see Section 09 26 13.80)									
3/8" thick, on walls or ceilings, standard, no finish included	2 Corp	1900	.008	S.F.	.23	.37		.60	.82
With thin coat plaster finish		875	.018		.33	.81		1.14	1.60
On beams, columns, or soffits, standard, no finish included		675	.024		.26	1.05		1.31	1.90
With thin coat plaster finish		475	.034		.36	1.49		1.85	2.69
1/2" thick, on walls or ceilings, standard, no finish included		1900	.008		.25	.37		.62	.85
With thin coat plaster finish		875	.018		.35	.81		1.16	1.62
Fire resistant, no finish included		1900	.008		.25	.37		.62	.85
With thin coat plaster finish		875	.018		.35	.81		1.16	1.62
On beams, columns, or soffits, standard, no finish included		675	.024		.29	1.05		1.34	1.93
With thin coat plaster finish		475	.034		.38	1.49		1.87	2.71
Fire resistant, no finish included		675	.024		.29	1.05		1.34	1.93
With thin coat plaster finish		475	.034		.38	1.49		1.87	2.71
5/8" thick, on walls or ceilings, fire resistant, no finish included		1900	.008		.25	.37		.62	.85
With thin coat plaster finish		875	.018		.35	.81		1.16	1.62
On beams, columns, or soffits, no finish included		675	.024		.29	1.05		1.34	1.93
With thin coat plaster finish		475	.034		.38	1.49		1.87	2.71
For high ceilings, over 8' high, add		3060	.005			.23		.23	.35
For over 3 stories high, add per story	↓	6100	.003	↓		.12		.12	.18

26 13.80 Thin Coat Plaster

THIN COAT PLASTER									
1 coat veneer, not incl. loth	J-1	3600	.011	S.F.	.10	.43	.04	.57	.79
In 50 lb. bags				Bog	12.95			12.95	14.25

09 28 Backing Boards and Underlayments

09 28 13 – Cementitious Backing Boards

09 28 13.10 Cementitious Backerboard		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
	CEMENTITIOUS BACKERBOARD						Labor	Equipment	
0010	Cementitious backerboard, on floor, 3' x 4' x 1/2" sheets	2 Corp	525	.030	S.F.	.73	1.34		2.07
0070	3' x 5' x 1/2" sheets		525	.030		.73	1.34		2.07
0080	3' x 6' x 1/2" sheets		525	.030		.68	1.34		2.02
0090	3' x 4' x 5/8" sheets		525	.030		.98	1.34		2.32
0100	3' x 5' x 5/8" sheets		525	.030		1	1.34		2.34
0110	3' x 6' x 5/8" sheets		525	.030		.90	1.34		2.24
0120	On wall, 3' x 4' x 1/2" sheets		350	.046		.73	2.02		2.75
0150	3' x 5' x 1/2" sheets		350	.046		.73	2.02		2.75
0160	3' x 6' x 1/2" sheets		350	.046		.68	2.02		2.70
0170	3' x 4' x 5/8" sheets		350	.046		.98	2.02		3
0180	3' x 5' x 5/8" sheets		350	.046		1	2.02		3.02
0190	3' x 6' x 5/8" sheets		350	.046		.90	2.02		2.92
0200	On counter, 3' x 4' x 1/2" sheets		180	.089		.73	3.92		4.65
0250	3' x 5' x 1/2" sheets		180	.089		.73	3.92		4.65
0260	3' x 6' x 1/2" sheets		180	.089		.68	3.92		4.60
0270	3' x 4' x 5/8" sheets		180	.089		.98	3.92		4.90
0300	3' x 5' x 5/8" sheets		180	.089		1	3.92		4.92
0310	3' x 6' x 5/8" sheets		180	.089		.90	3.92		4.82
0320									

09 29 Gypsum Board

09 29 10 – Gypsum Board Panels

09 29 10.30 Gypsum Board									
0010	GYPSUM BOARD on walls & ceilings	R092910-10							
0100	Nailed or screwed to studs unless otherwise noted								
0150	3/8" thick, on walls, stondord, no finish included	2 Corp	2000	.008	S.F.	.22	.35		.57
0200	On ceilings, stondord, no finish included		1800	.009		.22	.39		.61
0250	On beams, columns, or soffits, no finish included		675	.024		.22	1.05		1.27
0300	1/2" thick, on walls, stondord, no finish included		2000	.008		.22	.35		.57
0350	Topped and finished (level 4 finish)		965	.017		.27	.73		1
0390	With compound skim coat (level 5 finish)		775	.021		.31	.91		1.22
0400	Fire resistant, no finish included		2000	.008		.26	.35		.61
0450	Topped and finished (level 4 finish)		965	.017		.31	.73		1.04
0490	With compound skim coat (level 5 finish)		775	.021		.35	.91		1.26
0500	Water resistant, no finish included		2000	.008		.35	.35		.70
0550	Topped and finished (level 4 finish)		965	.017		.40	.73		1.13
0590	With compound skim coat (level 5 finish)		775	.021		.44	.91		1.35
0600	Prefinished, vinyl, clipped to studs		900	.018		.47	.78		1.25
0700	Mold resistant, no finish included		2000	.008		.38	.35		.73
0710	Topped and finished (level 4 finish)		965	.017		.43	.73		1.16
0720	With compound skim coat (level 5 finish)		775	.021		.47	.91		1.38
1000	On ceilings, stondord, no finish included		1800	.009		.22	.39		.61
1050	Topped and finished (level 4 finish)		765	.021		.27	.92		1.19
1090	With compound skim coat (level 5 finish)		610	.026		.31	1.16		1.47
1100	Fire resistant, no finish included		1800	.009		.26	.39		.65
1150	Topped and finished (level 4 finish)		765	.021		.31	.92		1.23
1195	With compound skim coat (level 5 finish)		610	.026		.35	1.16		1.51
1200	Water resistant, no finish included		1800	.009		.35	.39		.74
1250	Topped and finished (level 4 finish)		765	.021		.40	.92		1.32
1290	With compound skim coat (level 5 finish)		610	.026		.44	1.16		1.60
1310	Mold resistant, no finish included		1800	.009		.38	.39		.77

29 Gypsum Board

9 10 - Gypsum Board Panels

10.30 Gypsum Board	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
Taped and finished (level 4 finish)	2 Corp	765	.021	S.F.	.43	.92		1.35	1.89
With compound skim coat (level 5 finish)		610	.026		.47	1.16		1.63	2.30
On beams, columns, or soffits, standard, no finish included		675	.024		.25	1.05		1.30	1.89
Taped and finished (level 4 finish)		475	.034		.27	1.49		1.76	2.58
With compound skim coat (level 5 finish)		540	.030		.31	1.31		1.62	2.36
Fire resistant, no finish included		675	.024		.26	1.05		1.31	1.90
Taped and finished (level 4 finish)		475	.034		.31	1.49		1.80	2.63
With compound skim coat (level 5 finish)		540	.030		.35	1.31		1.66	2.40
Water resistant, no finish included		675	.024		.40	1.05		1.45	2.05
Taped and finished (level 4 finish)		475	.034		.40	1.49		1.89	2.73
With compound skim coat (level 5 finish)		540	.030		.44	1.31		1.75	2.50
Mold resistant, no finish included		675	.024		.44	1.05		1.49	2.09
Taped and finished (level 4 finish)		475	.034		.43	1.49		1.92	2.76
With compound skim coat (level 5 finish)		540	.030		.47	1.31		1.78	2.53
5/8" thick, on walls, standard, no finish included		2000	.008		.25	.35		.60	.82
Taped and finished (level 4 finish)		965	.017		.30	.73		1.03	1.46
With compound skim coat (level 5 finish)		775	.021		.34	.91		1.25	1.78
Fire resistant, no finish included		2000	.008		.27	.35		.62	.84
Taped and finished (level 4 finish)		965	.017		.32	.73		1.05	1.48
With compound skim coat (level 5 finish)		775	.021		.36	.91		1.27	1.80
Water resistant, no finish included		2000	.008		.43	.35		.78	1.01
Taped and finished (level 4 finish)		965	.017		.48	.73		1.21	1.65
With compound skim coat (level 5 finish)		775	.021		.52	.91		1.43	1.98
Prefinished, vinyl, clipped to studs		900	.018		.87	.78		1.65	2.17
Mold resistant, no finish included		2000	.008		.39	.35		.74	.97
Taped and finished (level 4 finish)		965	.017		.44	.73		1.17	1.61
With compound skim coat (level 5 finish)		775	.021		.48	.91		1.39	1.93
On ceilings, standard, no finish included		1800	.009		.25	.39		.64	.88
Taped and finished (level 4 finish)		765	.021		.30	.92		1.22	1.75
With compound skim coat (level 5 finish)		615	.026		.34	1.15		1.49	2.15
Fire resistant, no finish included		1800	.009		.27	.39		.66	.90
Taped and finished (level 4 finish)		765	.021		.32	.92		1.24	1.77
With compound skim coat (level 5 finish)		615	.026		.36	1.15		1.51	2.17
Water resistant, no finish included		1800	.009		.43	.39		.82	1.07
Taped and finished (level 4 finish)		765	.021		.48	.92		1.40	1.94
With compound skim coat (level 5 finish)		615	.026		.52	1.15		1.67	2.35
Mold resistant, no finish included		1800	.009		.39	.39		.78	1.03
Taped and finished (level 4 finish)		765	.021		.44	.92		1.36	1.90
With compound skim coat (level 5 finish)		615	.026		.48	1.15		1.63	2.30
On beams, columns, or soffits, no finish included		675	.024		.29	1.05		1.34	1.93
Taped and finished (level 4 finish)		475	.034		.34	1.49		1.83	2.66
With compound skim coat (level 5 finish)		380	.042		.40	1.86		2.26	3.30
Fire resistant, no finish included		675	.024		.31	1.05		1.36	1.95
Taped and finished (level 4 finish)		475	.034		.36	1.49		1.85	2.69
With compound skim coat (level 5 finish)		380	.042		.36	1.86		2.22	3.26
Water resistant, no finish included		675	.024		.49	1.05		1.54	2.15
Taped and finished (level 4 finish)		475	.034		.55	1.49		2.04	2.89
With compound skim coat (level 5 finish)		380	.042		.52	1.86		2.38	3.44
Mold resistant, no finish included		675	.024		.45	1.05		1.50	2.10
Taped and finished (level 4 finish)		475	.034		.50	1.49		1.99	2.84
With compound skim coat (level 5 finish)		380	.042		.48	1.86		2.34	3.39
Fireproofing, beams or columns, 2 layers, 1/2" thick, incl finish		330	.048		.57	2.14		2.71	3.91
Mold resistant		330	.048		.81	2.14		2.95	4.18

09 29 Gypsum Board

09 29 10 - Gypsum Board Panels

09 29 10.30 Gypsum Board		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
4050	5/8" thick	2 Carp	300	.053	S.F.	.63	2.35		2.98
4060	Mold resistant		300	.053		.87	2.35		3.22
4100	3 layers, 1/2" thick		225	.071		.83	3.14		3.97
4110	Mold resistant		225	.071		1.19	3.14		4.33
4150	5/8" thick		210	.076		.95	3.36		4.31
4160	Mold resistant		210	.076		1.31	3.36		4.67
5050	For 1" thick coreboard on columns		480	.033		.54	1.47		2.01
5100	For fail-backed board, add					.14			.14
5200	For work over 8' high, add	2 Carp	3060	.005			.23		.23
5270	For textured spray, add	2 Lath	1600	.010		.04	.39		.43
5300	For distribution cast over 3 stories high, add per story	2 Carp	6100	.003			.12		.12
5350	For finishing inner corners, add		950	.017	L.F.	.10	.74		.84
5355	For finishing outer corners, add		1250	.013		.22	.56		.78
5500	For acoustical sealant, add per bead	1 Carp	500	.016		.04	.71		.75
5550	Sealant, 1 quart tube				Ea.	7.05			7.05
6000	Gypsum sound dampening panels								
6010	1/2" thick on walls, multi-layer, light weight, no finish included	2 Carp	1500	.011	S.F.	1.36	.47		1.83
6015	Taped and finished (level 4 finish)		725	.022		1.41	.97		2.38
6020	With compound skim coat (level 5 finish)		580	.028		1.45	1.22		2.67
6025	5/8" thick on walls, for wood studs, no finish included		1500	.011		2.37	.47		2.84
6030	Taped and finished (level 4 finish)		725	.022		2.42	.97		3.39
6035	With compound skim coat (level 5 finish)		580	.028		2.46	1.22		3.68
6040	For metal stud, no finish included		1500	.011		2.08	.47		2.55
6045	Taped and finished (level 4 finish)		725	.022		2.13	.97		3.10
6050	With compound skim coat (level 5 finish)		580	.028		2.17	1.22		3.39
6055	Abuse resist, no finish included		1500	.011		2.54	.47		3.01
6060	Taped and finished (level 4 finish)		725	.022		2.59	.97		3.56
6065	With compound skim coat (level 5 finish)		580	.028		2.63	1.22		3.85
6070	Shear rated, no finish included		1500	.011		2.76	.47		3.23
6075	Taped and finished (level 4 finish)		725	.022		2.81	.97		3.78
6080	With compound skim coat (level 5 finish)		580	.028		2.85	1.22		4.07
6085	For SCIF applications, no finish included		1500	.011		3.05	.47		3.52
6090	Taped and finished (level 4 finish)		725	.022		3.10	.97		4.07
6095	With compound skim coat (level 5 finish)		580	.028		3.14	1.22		4.36
6100	1-3/8" thick on walls, THX Certified, no finish included		1500	.011		6.35	.47		6.82
6105	Taped and finished (level 4 finish)		725	.022		6.40	.97		7.37
6110	With compound skim coat (level 5 finish)		580	.028		6.45	1.22		7.67
6115	5/8" thick on walls, score & snap installation, no finish included		2000	.008		1.62	.35		1.97
6120	Taped and finished (level 4 finish)		965	.017		1.67	.73		2.40
6125	With compound skim coat (level 5 finish)		775	.021		1.71	.91		2.62
7020	5/8" thick on ceilings, for wood joists, no finish included		1200	.013		2.37	.59		2.96
7025	Taped and finished (level 4 finish)		510	.031		2.42	1.38		3.80
7030	With compound skim coat (level 5 finish)		410	.039		2.46	1.72		4.18
7035	For metal joists, no finish included		1200	.013		2.08	.59		2.67
7040	Taped and finished (level 4 finish)		510	.031		2.13	1.38		3.51
7045	With compound skim coat (level 5 finish)		410	.039		2.17	1.72		3.89
7050	Abuse resist, no finish included		1200	.013		2.54	.59		3.13
7055	Taped and finished (level 4 finish)		510	.031		2.59	1.38		3.97
7060	With compound skim coat (level 5 finish)		410	.039		2.63	1.72		4.35
7065	Shear rated, no finish included		1200	.013		2.76	.59		3.35
7070	Taped and finished (level 4 finish)		510	.031		2.81	1.38		4.19
7075	With compound skim coat (level 5 finish)		410	.039		2.85	1.72		4.57
7080	For SCIF applications, no finish included		1200	.013		3.05	.59		3.64

29 Gypsum Board

9 10 – Gypsum Board Panels

10.30 Gypsum Board	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Taped and finished (level 4 finish)	2 Corp	510	.031	S.F.	3.10	1.38		4.48	5.55
With compound skim coat (level 5 finish)		410	.039		3.14	1.72		4.86	6.10
5/8" thick on ceilings, scare & snap installation, no finish included		1600	.010		1.62	.44		2.06	2.46
Taped and finished (level 4 finish)		680	.024		1.67	1.04		2.71	3.43
With compound skim coat (level 5 finish)		545	.029		1.71	1.29		3	3.88

10.50 High Abuse Gypsum Board

HIGH ABUSE GYPSUM BOARD , fiber reinforced, nailed or screwed to studs unless otherwise noted									
1/2" thick, on walls, no finish included	2 Corp	1800	.009	S.F.	.82	.39		1.21	1.50
Taped and finished (level 4 finish)		870	.018		.87	.81		1.68	2.20
With compound skim coat (level 5 finish)		700	.023		.91	1.01		1.92	2.56
On ceilings, no finish included		1620	.010		.82	.44		1.26	1.57
Taped and finished (level 4 finish)		690	.023		.87	1.02		1.89	2.52
With compound skim coat (level 5 finish)		550	.029		.91	1.28		2.19	2.98
5/8" thick, on walls, no finish included		1800	.009		.72	.39		1.11	1.39
Taped and finished (level 4 finish)		870	.018		.77	.81		1.58	2.09
With compound skim coat (level 5 finish)		700	.023		.81	1.01		1.82	2.45
On ceilings, no finish included		1620	.010		.72	.44		1.16	1.46
Taped and finished (level 4 finish)		690	.023		.77	1.02		1.79	2.41
With compound skim coat (level 5 finish)		550	.029		.81	1.28		2.09	2.87
5/8" thick, on walls, very high impact, no finish included		1800	.009		1.15	.39		1.54	1.87
Taped and finished (level 4 finish)		870	.018		1.20	.81		2.01	2.57
With compound skim coat (level 5 finish)		700	.023		1.24	1.01		2.25	2.92
On ceilings, no finish included		1620	.010		1.15	.44		1.59	1.94
Taped and finished (level 4 finish)		690	.023		1.20	1.02		2.22	2.89
With compound skim coat (level 5 finish)		550	.029		1.24	1.28		2.52	3.34
High abuse, gypsum core, paper face									
1/2" thick, on walls, no finish included	2 Corp	1800	.009	S.F.	.76	.39		1.15	1.44
Taped and finished (level 4 finish)		870	.018		.81	.81		1.62	2.14
With compound skim coat (level 5 finish)		700	.023		.85	1.01		1.86	2.49
On ceilings, no finish included		1620	.010		.76	.44		1.20	1.51
Taped and finished (level 4 finish)		690	.023		.81	1.02		1.83	2.46
With compound skim coat (level 5 finish)		550	.029		.85	1.28		2.13	2.91
5/8" thick, on walls, no finish included		1800	.009		.76	.39		1.15	1.44
Taped and finished (level 4 finish)		870	.018		.81	.81		1.62	2.14
With compound skim coat (level 5 finish)		700	.023		.85	1.01		1.86	2.49
On ceilings, no finish included		1620	.010		.76	.44		1.20	1.51
Taped and finished (level 4 finish)		690	.023		.81	1.02		1.83	2.46
With compound skim coat (level 5 finish)		550	.029		.85	1.28		2.13	2.91
For high ceilings, over 8' high, odd		2750	.006			.26		.26	.39
For distribution cast over 3 stories high, add per story		5500	.003			.13		.13	.20

29 15 – Gypsum Board Accessories

9 15.10 Accessories, Gypsum Board

ACCESSORIES, GYPSUM BOARD									
Casing bead, galvanized steel	1 Corp	2.90	2.759	C.L.F.	24	122		146	214
Vinyl		3	2.667		21.50	118		139.50	205
Corner bead, galvanized steel, 1" x 1"		4	2		14.50	88		102.50	152
1-1/4" x 1-1/4"		3.50	2.286		15.85	101		116.85	172
Vinyl		4	2		16.75	88		104.75	154
Furring channel, galv. steel, 7/8" deep, standard		2.60	3.077		32.50	136		168.50	245
Resilient		2.55	3.137		37.50	138		175.50	255
J trim, galvanized steel, 1/2" wide		3	2.667		26.50	118		144.50	210

09 29 Gypsum Board

09 29 15 - Gypsum Board Accessories

09 29 15.10 Accessories, Gypsum Board

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total
1120	5/8" wide	1 Corp	2.95	2.712	C.L.F.	28	120		148
1140	L trim, galvanized		3	2.667		23.50	118		141.50
1150	U trim, galvanized		2.95	2.712		20.50	120		140.50
1160	Screws #6 x 1" A				M	8.45			8.45
1170	#6 x 1-5/8" A				"	12.40			12.40
1200	For stud partitions, see Section 05 41 13.30 and 09 22 16.13								
1500	Z stud, galvanized steel, 1-1/2" wide	1 Corp	2.60	3.077	C.L.F.	37.50	136		173.50
1600	2" wide	"	2.55	3.137	"	58	138		196

09 30 Tiling

09 30 13 - Ceramic Tiling

09 30 13.10 Ceramic Tile

0010	CERAMIC TILE								
0020	Backsplash, thinset, average grade tiles	1 Tlf	50	.160	S.F.	2.42	6.50		8.92
0022	Custom grade tiles		50	.160		4.84	6.50		11.34
0024	Luxury grade tiles		50	.160		9.70	6.50		16.20
0026	Economy grade tiles		50	.160		2.21	6.50		8.71
0050	Base, using 1' x 4" high pc. with 1" x 1" tiles, mud set	D-7	82	.195	L.F.	4.95	7.10		12.05
0100	Thin set	"	128	.125		4.59	4.55		9.14
0300	For 6" high base, 1" x 1" tile face, odd					.74			.74
0400	For 2" x 2" tile face, odd to above					.39			.39
0600	Cove base, 4-1/4" x 4-1/4" high, mud set	D-7	91	.176		3.68	6.40		10.08
0700	Thin set		128	.125		3.71	4.55		8.26
0900	6" x 4-1/4" high, mud set		100	.160		3.40	5.85		9.25
1000	Thin set		137	.117		3.27	4.25		7.52
1200	Sanitary cove base, 6" x 4-1/4" high, mud set		93	.172		3.95	6.25		10.20
1300	Thin set		124	.129		3.82	4.70		8.52
1500	6" x 6" high, mud set		84	.190		3.72	6.95		10.67
1600	Thin set		117	.137		3.59	4.98		8.57
1800	Bathroom accessories, average (soap dish, tooth brush holder)		82	.195	Eq.	11.85	7.10		18.95
1900	Bathtub, 5', rec. 4-1/4" x 4-1/4" tile wainscot, adhesive set 6' high		2.90	5.517		156	201		357
2100	7' high wainscot		2.50	6.400		179	233		412
2200	8' high wainscot		2.20	7.273		190	265		455
2400	Bullnose trim, 4-1/4" x 4-1/4", mud set		82	.195	L.F.	3.52	7.10		10.62
2500	Thin set		128	.125		3.43	4.55		7.98
2700	6" x 4-1/4" bullnose trim, mud set		84	.190		4.84	6.95		11.79
2800	Thin set		124	.129		4.75	4.70		9.45
3000	Floors, natural clay, random or uniform, thin set, color group 1		183	.087	S.F.	3.83	3.19		7.02
3100	Color group 2		183	.087		5.55	3.19		8.74
3255	Floors, glazed, thin set, 6" x 6", color group 1		300	.053		4.43	1.94		6.37
3260	8" x 8" tile		300	.053		4.43	1.94		6.37
3270	12" x 12" tile		290	.055		5.90	2.01		7.91
3280	16" x 16" tile		280	.057		6.20	2.08		8.28
3281	18" x 18" tile		270	.059		6.20	2.16		8.36
3283	24" x 24" tile		250	.064		6.20	2.33		8.53
3285	Border, 6" x 12" tile		200	.080		22	2.91		24.91
3290	3" x 12" tile		200	.080		23.50	2.91		26.41
3300	Porcelain type, 1 color, color group 2, 1" x 1"		183	.087		4.89	3.19		8.08
3310	2" x 2" or 2" x 1", thin set		190	.084		4.33	3.07		7.40
3350	For random blend, 2 colors, odd					.95			.95
3360	4 colors, odd					1.33			1.33

30 Tiling

0 13 – Ceramic Tiling

13.10 Ceramic Tile	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
For color group 3, add				S.F.	.54			.54	.59
For abrasive non-slip tile, add					.52			.52	.57
Specialty tile, 4-1/4" x 4-1/4" x 1/2", decorator finish	D-7	183	.087		10.20	3.19		13.39	15.90
Add for epoxy grout, 1/16" joint, 1" x 1" tile		800	.020		.64	.73		1.37	1.77
2" x 2" tile		820	.020		.60	.71		1.31	1.70
PregROUTed sheets, walls, 4-1/4" x 4-1/4", 6" x 4-1/4" and 8-1/2" x 4-1/4", 4 S.F. sheets, silicone grout	D-7	240	.067	S.F.	4.87	2.43		7.30	8.90
Floors, unglazed, 2 S.F. sheets, Urethane adhesive	D-7	180	.089	S.F.	4.85	3.24		8.09	10.10
Walls, interior, thin set, 4-1/4" x 4-1/4" tile		190	.084		2.20	3.07		5.27	6.95
6" x 4-1/4" tile		190	.084		2.93	3.07		6	7.75
8-1/2" x 4-1/4" tile		190	.084		4.09	3.07		7.16	9
6" x 6" tile		175	.091		2.55	3.33		5.88	7.70
8" x 8" tile		170	.094		3.64	3.43		7.07	9.05
12" x 12" tile		160	.100		3.53	3.64		7.17	9.25
16" x 16" tile		150	.107		4.53	3.89		8.42	10.70
Decorated wall tile, 4-1/4" x 4-1/4", minimum		270	.059		2.80	2.16		4.96	6.25
Maximum		180	.089		45.50	3.24		48.74	55
Exterior walls, frostproof, mud set, 4-1/4" x 4-1/4"		102	.157		7	5.70		12.70	16.10
1-3/8" x 1-3/8"		93	.172		5	6.25		11.25	14.70
Crystalline glazed, 4-1/4" x 4-1/4", mud set, plain		100	.160		3.58	5.85		9.43	12.50
4-1/4" x 4-1/4", scored tile		100	.160		5.30	5.85		11.15	14.40
6" x 6" plain		93	.172		5.65	6.25		11.90	15.40
For epoxy grout, 1/16" joints, 4-1/4" tile, add		800	.020		.40	.73		1.13	1.51
For tile set in dry mortar, add		1735	.009			.34		.34	.49
For tile set in Portland cement mortar, add		290	.055		.16	2.01		2.17	3.13
Ceramic tiles, recycled gloss, standard colors, 2" x 2" thru 6" x 6"	G	190	.084		21	3.07		24.07	27.50
6" x 6"	G	175	.091		21	3.33		24.33	28
8" x 8"	G	170	.094		23	3.43		26.43	30.50
12" x 12"	G	160	.100		23	3.64		26.64	31
Earthtones, 2" x 2" to 4" x 8"	G	190	.084		26	3.07		29.07	33
6" x 6"	G	175	.091		26	3.33		29.33	33.50
8" x 8"	G	170	.094		27	3.43		30.43	34.50
12" x 12"	G	160	.100		27	3.64		30.64	35
Deep colors, 2" x 2" to 4" x 8"	G	190	.084		31	3.07		34.07	38.50
6" x 6"	G	175	.091		31	3.33		34.33	39
8" x 8"	G	170	.094		32	3.43		35.43	40.50
12" x 12"	G	160	.100		32	3.64		35.64	41

0 13.20 Ceramic Tile Repairs

CERAMIC TILE REPAIRS									
Grout removal, carbide tipped, rotary grinder	1 Clob	180	.044	L.F.		1.56		1.56	2.40
RegROUT tile 4-1/2 x 4-1/2, or larger, wall	1 Tilf	100	.080	S.F.	.14	3.26		3.40	4.94
Floor		125	.064		.15	2.61		2.76	4
Seal tile and grout		360	.022		.17	.91		1.08	1.52

0 13.45 Ceramic Tile Accessories

CERAMIC TILE ACCESSORIES									
Spacers, 1/8"				Eo.	1.44			1.44	1.58
Sealer for natural stone tile, installed	1 Tilf	650	.012	S.F.	.04	.50		.54	.78

30 16 – Quarry Tiling

0 16.10 Quarry Tile

QUARRY TILE									
Base, cove or sanitary, mud set, to 5" high, 1/2" thick	D-7	110	.145	L.F.	5.60	5.30		10.90	13.95

09 30 Tiling

09 30 16 – Quarry Tiling

09 30 16.10 Quarry Tile		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total
							Labor	Equipment	
0300	Bullnose trim, red, mud set, 6" x 6" x 1/2" thick	D-7	120	.133	L.F.	4.46	4.86		9.32
0400	4" x 4" x 1/2" thick		110	.145		4.96	5.30		10.26
0600	4" x 8" x 1/2" thick, using 8" as edge		130	.123	▼	4.38	4.48		8.86
0700	Floors, mud set, 1,000 S.F. lots, red, 4" x 4" x 1/2" thick		120	.133	S.F.	6.45	4.86		11.31
0900	6" x 6" x 1/2" thick		140	.114		6	4.16		10.16
1000	4" x 8" x 1/2" thick	▼	130	.123		6.45	4.48		10.93
1300	For waxed coating, add					.73			.73
1500	For non-standard colors, add					.43			.43
1600	For abrasive surface, add					.50			.50
1800	Brown tile, imported, 6" x 6" x 3/4"	D-7	120	.133		7.45	4.86		12.31
1900	8" x 8" x 1"		110	.145		8.15	5.30		13.45
2100	For thin set mortar application, deduct		700	.023			.83		.83
2200	For epoxy grout & mortar, 6" x 6" x 1/2", add		350	.046		1.96	1.67		3.63
2700	Stair tread, 6" x 6" x 3/4", plain		50	.320		5.15	11.65		16.80
2800	Abrasive		47	.340		5.75	12.40		18.15
3000	Wainscot, 6" x 6" x 1/2", thin set, red		105	.152		4.44	5.55		9.99
3100	Non-standard colors		105	.152	▼	4.92	5.55		10.47
3300	Window sill, 6" wide, 3/4" thick		90	.178	L.F.	5.30	6.50		11.80
3400	Corners	▼	80	.200	Eq.	6.20	7.30		13.50

09 30 23 – Glass Mosaic Tiling

09 30 23.10 Glass Mosaics

0010	GLASS MOSAICS 3/4" tile on 12" sheets, standard grout								
0300	Color group 1 & 2	D-7	73	.219	S.F.	17.20	8		25.20
0350	Color group 3		73	.219		19.30	8		27.30
0400	Color group 4		73	.219		25	8		33
0450	Color group 5		73	.219		28.50	8		36.50
0500	Color group 6		73	.219		40.50	8		48.50
0600	Color group 7		73	.219		43.50	8		51.50
0700	Color group 8, golds, silvers & specialties	▼	64	.250	▼	57	9.10		66.10

09 30 29 – Metal Tiling

09 30 29.10 Metal Tile

0010	METAL TILE 4' x 4' sheet, 24 ga., tile pattern, noiled								
0200	Stainless steel	2 Corp	512	.031	S.F.	27	1.38		28.38
0400	Aluminized steel	"	512	.031	"	14.50	1.38		15.88

09 34 Waterproofing-Membrane Tiling

09 34 13 – Waterproofing-Membrane Ceramic Tiling

09 34 13.10 Ceramic Tile Waterproofing Membrane

0010	CERAMIC TILE WATERPROOFING MEMBRANE								
0020	On floors, including thinset								
0030	Fleece laminated polyethylene grid, 1/8" thick	D-7	250	.064	S.F.	2.24	2.33		4.57
0040	5/16" thick	"	250	.064	"	2.60	2.33		4.93
0050	On walls, including thinset								
0060	Fleece laminated polyethylene sheet, 8 mil thick	D-7	480	.033	S.F.	2.24	1.21		3.45
0070	Accessories, including thinset								
0080	Joint and corner sheet, 4 mils thick, 5" wide	1 Tile	240	.033	L.F.	1.45	1.36		2.81
0090	7-1/4" wide		180	.044	▼	1.84	1.81		3.65
0100	10" wide		120	.067	▼	2.24	2.72		4.96
0110	Pre-formed corners, inside		32	.250	Eq.	4.73	10.20		14.93
0120	Outside	▼	32	.250	▼	7.40	10.20		17.60

34 Waterproofing-Membrane Tiling

4 13 - Waterproofing-Membrane Ceramic Tiling

13.10 Ceramic Tile Waterproofing Membrane	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
	1 Tlf	16	.500	Ea.	355	Labor	Equipment	375.50	420
2" flanged floor drain with 6" stainless steel grate						20.50			
EPS, sloped shower floor		480	.017	S.F.	4.82	.68		5.50	6.30
Curb	↓	32	.250	L.F.	13.55	10.20		23.75	30

51 Acoustical Ceilings

1 23 - Acoustical Tile Ceilings

23.10 Suspended Acoustic Ceiling Tiles

SUSPENDED ACOUSTIC CEILING TILES, not including

suspension system									
Fiberglass boards, film faced, 2' x 2' or 2' x 4', 5/8" thick	1 Corp	625	.013	S.F.	.96	.56		1.52	1.93
3/4" thick		600	.013		1.55	.59		2.14	2.61
3" thick, thermal, R11		450	.018		1.57	.78		2.35	2.94
Glass cloth faced fiberglass, 3/4" thick		500	.016		1.49	.71		2.20	2.73
1" thick		485	.016		2.18	.73		2.91	3.52
1-1/2" thick, nubby face		475	.017		2.66	.74		3.40	4.07
Mineral fiber tile, lay-in, 2' x 2' or 2' x 4', 5/8" thick, fine texture		625	.013		.75	.56		1.31	1.70
Rough textured		625	.013		1.36	.56		1.92	2.37
3/4" thick, fine textured		600	.013		1.50	.59		2.09	2.55
Rough textured		600	.013		1.79	.59		2.38	2.87
Fissured		600	.013		2.45	.59		3.04	3.60
Tegular, 5/8" thick, fine textured		470	.017		1.45	.75		2.20	2.75
Rough textured		470	.017		1.90	.75		2.65	3.24
3/4" thick, fine textured		450	.018		2.08	.78		2.86	3.50
Rough textured		450	.018		2.35	.78		3.13	3.80
Fissured	↓	450	.018		3.63	.78		4.41	5.20
For aluminum face, add					6.15			6.15	6.80
For plastic film face, add					.94			.94	1.03
For fire rating, add					.45			.45	.50
Mirror tile, acrylic, 2' x 2'	1 Corp	500	.016		10.95	.71		11.66	13.15
Eggcrate, acrylic, 1/2" x 1/2" x 1/2" cubes		500	.016		1.82	.71		2.53	3.09
Polystyrene eggcrate, 3/8" x 3/8" x 1/2" cubes		510	.016		1.53	.69		2.22	2.74
1/2" x 1/2" x 1/2" cubes		500	.016		1.85	.71		2.56	3.13
Luminous panels, prismatic, acrylic		400	.020		2.22	.88		3.10	3.80
Polystyrene		400	.020		1.14	.88		2.02	2.61
Flat white acrylic		400	.020		3.86	.88		4.74	5.60
Polystyrene		400	.020		2.65	.88		3.53	4.28
Drop pan, white, acrylic		400	.020		5.65	.88		6.53	7.60
Polystyrene		400	.020		4.73	.88		5.61	6.55
Perforated aluminum sheets, .024" thick, corrugated, painted		490	.016		2.29	.72		3.01	3.63
Plain		500	.016		3.78	.71		4.49	5.25
Mineral fiber, 24" x 24" or 48", reveal edge, painted, 5/8" thick		600	.013		1.38	.59		1.97	2.42
3/4" thick		575	.014		2.24	.61		2.85	3.40
66 - 78% recycled content, 3/4" thick	G	600	.013		1.82	.59		2.41	2.90
Mylar, 42% recycled content, 3/4" thick	G	600	.013	↓	4.28	.59		4.87	5.60

1 23.30 Suspended Ceilings, Complete

SUSPENDED CEILINGS, COMPLETE, including standard

suspension system but not incl. 1-1/2" carrier channels									
Fiberglass ceiling board, 2' x 4' x 5/8", plain faced	1 Corp	500	.016	S.F.	1.66	.71		2.37	2.91
Offices, 2' x 4' x 3/4"		380	.021		2.25	.93		3.18	3.90
Mineral fiber, on 15/16" T bar susp. 2' x 2' x 3/4" lay-in board		345	.023		2.37	1.02		3.39	4.17
2' x 4' x 5/8" tile	↓	380	.021	↓	1.45	.93		2.38	3.02

09 51 Acoustical Ceilings

09 51 23 - Acoustical Tile Ceilings

09 51 23.30 Suspended Ceilings, Complete		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total
							Labor	Equipment	
0820	Regular, 2' x 2' x 5/8" tile on 9/16" grid	1 Carp	250	.032	S.F.	2.48	1.41		3.89
0830	2' x 4' x 3/4" tile		275	.029		2.94	1.28		4.22
0900	Luminous panels, prismatic, acrylic		255	.031		2.92	1.38		4.30
1200	Metal pan with acoustic pad, steel		75	.107		4.41	4.70		9.11
1300	Painted aluminum		75	.107		2.99	4.70		7.69
1500	Aluminum, degreased finish		75	.107		5.10	4.70		9.80
1600	Stainless steel		75	.107		9.50	4.70		14.20
1800	Tile, Z bar suspension, 5/8" mineral fiber tile		150	.053		2.27	2.35		4.62
1900	3/4" mineral fiber tile	▼	150	.053	▼	2.43	2.35		4.78
2400	For strip lighting, see Section 26 51 13.50								
2500	For rooms under 500 S.F., add				S.F.		25%		

09 51 53 - Direct-Applied Acoustical Ceilings

09 51 53.10 Ceiling Tile		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs	Total
							Labor	
0010	CEILING TILE, stapled or cemented							
0100	12" x 12" or 12" x 24", not including furring							
0600	Mineral fiber, vinyl coated, 5/8" thick	1 Carp	300	.027	S.F.	1.72	1.18	2.90
0700	3/4" thick		300	.027		2.12	1.18	3.30
0900	Fire rated, 3/4" thick, plain faced		300	.027		1.46	1.18	2.64
1000	Plastic coated face		300	.027		1.24	1.18	2.42
1200	Aluminum faced, 5/8" thick, plain		300	.027		1.59	1.18	2.77
3700	Wall application of above, add	▼	1000	.008			.35	.35
3900	For ceiling primer, add					.13		.13
4000	For ceiling cement, add				▼	.37		.37

09 53 Acoustical Ceiling Suspension Assemblies

09 53 23 - Metal Acoustical Ceiling Suspension Assemblies

09 53 23.30 Ceiling Suspension Systems		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs	Total
							Labor	
0010	CEILING SUSPENSION SYSTEMS for boards and tile							
0050	Class A suspension system, 15/16" T bar, 2' x 4' grid	1 Carp	800	.010	S.F.	.70	.44	1.14
0300	2' x 2' grid		650	.012		.87	.54	1.41
0310	25% recycled steel, 2' x 4' grid	G	800	.010		.76	.44	1.20
0320	2' x 2' grid	G	650	.012		.96	.54	1.50
0350	For 9/16" grid, add	▼				.16		.16
0360	For fire rated grid, add					.09		.09
0370	For colored grid, add					.21		.21
0400	Concealed Z bar suspension system, 12" module	1 Carp	520	.015		.73	.68	1.41
0600	1-1/2" carrier channels, 4' O.C., add	"	470	.017	▼	.13	.75	.88
0700	Carrier channels for ceilings with							
0900	recessed lighting fixtures, add	1 Carp	460	.017	S.F.	.23	.77	1
1040	Hanging wire, 12 ga., 4' long		65	.123	C.S.F.	7.45	5.45	12.90
1080	8' long		65	.123	"	14.90	5.45	20.35
1200	Seismic bracing, 2-1/2" compression post with four bracing wires	▼	50	.160	Eq.	2.88	7.05	9.93

54 Specialty Ceilings

4 33 – Decorative Panel Ceilings

33.20 Metal Panel Ceilings

METAL PANEL CEILINGS

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Lay-in or screwed to furring, not including grid									
Tin ceilings, 2' x 2' or 2' x 4', bare steel finish	2 Corp	300	.053	S.F.	2.36	2.35		4.71	6.20
Pointed white finish		300	.053	"	3.64	2.35		5.99	7.60
Copper, chrome or brass finish		300	.053	L.F.	6.65	2.35		9	10.90
Cornice molding, 2-1/2" to 3-1/2" wide, 4' long, bare steel finish		200	.080	S.F.	2.25	3.53		5.78	7.90
Pointed white finish		200	.080		2.94	3.53		6.47	8.70
Copper, chrome or brass finish		200	.080		3.96	3.53		7.49	9.80
5" to 6-1/2" wide, 4' long, bare steel finish		150	.107		3.19	4.70		7.89	10.75
Pointed white finish		150	.107		4.20	4.70		8.90	11.85
Copper, chrome or brass finish		150	.107		6.50	4.70		11.20	14.40
Flat molding, 3-1/2" to 5" wide, 4' long, bare steel finish		250	.064		3.69	2.82		6.51	8.40
Pointed white finish		250	.064		4.09	2.82		6.91	8.85
Copper, chrome or brass finish	▼	250	.064	▼	7.35	2.82		10.17	12.45

62 Specialty Flooring

2 19 – Laminate Flooring

19.10 Floating Floor

FLOATING FLOOR

Flooring floor, laminate, wood pattern strip, complete	1 Clob	133	.060	S.F.	4.18	2.11		6.29	7.85
Components, T & G wood composite strips					3.27			3.27	3.59
Film					.13			.13	.14
Foam					.25			.25	.28
Adhesive					.50			.50	.55
Installation kit				▼	.17			.17	.19
Trim, 2" wide x 3' long				L.F.	3.85			3.85	4.24
Reducer moulding				"	5.20			5.20	5.70

2 23 – Bamboo Flooring

2 23.10 Flooring, Bamboo

FLOORING, BAMBOO

Flooring, wood, bamboo strips, unfinished, 5/8" x 4" x 3'		1 Corp	255	.031	S.F.	4.44	1.38	5.82	7
5/8" x 4" x 4'			275	.029		4.61	1.28	5.89	7
5/8" x 4" x 6'			295	.027		5.05	1.20	6.25	7.40
Finished, 5/8" x 4" x 3'			255	.031		4.89	1.38	6.27	7.55
5/8" x 4" x 4'			275	.029		5.10	1.28	6.38	7.60
5/8" x 4" x 6'			295	.027	▼	4.28	1.20	5.48	6.55
Stair treads, unfinished, 1-1/16" x 11-1/2" x 4'			18	.444	Eu.	42.50	19.60	62.10	77
Finished, 1-1/16" x 11-1/2" x 4'			18	.444		71.50	19.60	91.10	109
Stair risers, unfinished, 5/8" x 7-1/2" x 4'			18	.444		15.75	19.60	35.35	47.50
Finished, 5/8" x 7-1/2" x 4'			18	.444		30	19.60	49.60	63
Stair nosing, unfinished, 6' long			16	.500		35	22	57	72.50
Finished, 6' long		▼	16	.500	▼	39.50	22	61.50	77.50

09 63 Masonry Flooring

09 63 13 – Brick Flooring

09 63 13.10 Miscellaneous Brick Flooring

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Ind
0010	MISCELLANEOUS BRICK FLOORING									
0020	Acid-proof shales, red, 8" x 3-3/4" x 1-1/4" thick	D-7	.43	37.209	M	760	1,350		2,110	2.8
0050	2-1/4" thick	D-1	.40	40		950	1,600		2,550	2.8
0200	Acid-proof clay brick, 8" x 3-3/4" x 2-1/4" thick	G	.40	40		890	1,600		2,490	3.3
0250	9" x 4-1/2" x 3"	G	▼	95	S.F.	4.14	6.70		10.84	
0260	Cost ceramic, pressed, 4" x 8" x 1/2", unglazed	D-7	100	.160		6.25	5.85		12.10	
0270	Glozed		100	.160		8.35	5.85		14.20	
0280	Hand molded flooring, 4" x 8" x 3/4", unglazed		95	.168		8.25	6.15		14.40	
0290	Glozed		95	.168		10.35	6.15		16.50	
0300	8" hexagonal, 3/4" thick, unglazed		85	.188		9.05	6.85		15.90	
0310	Glozed	▼	85	.188		16.35	6.85		23.20	
0400	Heavy duty industrial, cement mortar bed, 2" thick, not incl. brick	D-1	80	.200		.83	7.95		8.78	
0450	Acid-proof joints, 1/4" wide	"	65	.246		1.44	9.80		11.24	
0500	Pavers, 8" x 4", 1" to 1-1/4" thick, red	D-7	95	.168		3.64	6.15		9.79	
0510	Ironspot	"	95	.168		5.15	6.15		11.30	
0540	1-3/8" to 1-3/4" thick, red	D-1	95	.168		3.51	6.70		10.21	
0560	Ironspot		95	.168		5.10	6.70		11.80	
0580	2-1/4" thick, red		90	.178		3.57	7.10		10.67	
0590	Ironspot		90	.178		5.55	7.10		12.65	
0700	Paver, oolite brick, 6" x 12", 1/2" joint	G	▼	42	.381	1.38	15.20		16.58	
0710	Mexican red, 12" x 12"	G	1 Tilt	48	.167	1.64	6.80		8.44	
0720	Saltillo, 12" x 12"	G	"	48	.167	▼	1.64	6.80	8.44	
0800	For sidewalks and patios with pavers, see Section 32 14 16.10									
0870	For epoxy joints, add	D-1	600	.027	S.F.	2.72	1.06		3.78	
0880	For Furan underlayment, add	"	600	.027		2.25	1.06		3.31	
0890	For waxed surface, steam cleaned, add	A-1H	1000	.008	▼	.20	.28	.07	.55	

09 63 40 – Stone Flooring

09 63 40.10 Marble

0010	MARBLE									
0020	Thin gouge tile, 12" x 6", 3/8", white Cororo	D-7	60	.267	S.F.	11.45	9.70		21.15	2.8
0100	Trovertine		60	.267	▼	13.15	9.70		22.85	2.8
0200	12" x 12" x 3/8", thin set, floors		60	.267	▼	6.25	9.70		15.95	2.8
0300	On walls		52	.308	▼	9.85	11.20		21.05	2.8
1000	Marble threshold, 4" wide x 36" long x 5/8" thick, white	▼	60	.267	Eq.	6.25	9.70		15.95	2.8

09 63 40.20 Slate Tile

0010	SLATE TILE									
0020	Vermont, 6" x 6" x 1/4" thick, thin set	D-7	180	.089	S.F.	7.50	3.24		10.74	1
0200	See also Section 32 14 40.10									

09 64 Wood Flooring

09 64 16 – Wood Block Flooring

09 64 16.10 End Grain Block Flooring

0010	END GRAIN BLOCK FLOORING									
0020	End grain flooring, coated, 2" thick	1 Corp	295	.027	S.F.	3.52	1.20		4.72	
0400	Natural finish, 1" thick, fir		125	.064		3.64	2.82		6.46	
0600	1-1/2" thick, pine		125	.064		3.57	2.82		6.39	
0700	2" thick, pine	▼	125	.064	▼	5	2.82		7.82	

64 Wood Flooring

4 19 – Wood Composition Flooring

19.10 Wood Composition	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
WOOD COMPOSITION Gym floors									
2-1/4" x 6-7/8" x 3/8", on 2" grout setting bed	D-7	150	.107	S.F.	6.05	3.89		9.94	12.35
Thin set, on concrete	"	250	.064		5.50	2.33		7.83	9.45
Sanding and finishing, add	1 Carp	200	.040	▼	.81	1.76		2.57	3.60

4 23 – Wood Parquet Flooring

23.10 Wood Parquet

WOOD PARQUET flooring									
Parquetry, standard, 5/16" thick, nat incl. finish, oak, minimum	1 Carp	160	.050	S.F.	4.56	2.21		6.77	8.40
Maximum		100	.080		5.80	3.53		9.33	11.80
Teak, minimum		160	.050		4.86	2.21		7.07	8.75
Maximum		100	.080		8.50	3.53		12.03	14.80
13/16" thick, select grade oak, minimum		160	.050		9.50	2.21		11.71	13.85
Maximum		100	.080		14.40	3.53		17.93	21.50
Custom parquetry, including finish, minimum		100	.080		15.65	3.53		19.18	22.50
Maximum		50	.160		21	7.05		28.05	34
Parquetry, prefinished white oak, 5/16" thick, minimum		160	.050		3.30	2.21		5.51	7
Maximum		100	.080		4.47	3.53		8	10.35
Walnut or teak, parquetry, minimum		160	.050		5.35	2.21		7.56	9.30
Maximum	▼	100	.080	▼	9.35	3.53		12.88	15.75
Acrylic wood parquet blacks, 12" x 12" x 5/16", irradiated, set in epoxy	1 Carp	160	.050	S.F.	7.80	2.21		10.01	12

64 29 – Wood Strip and Plank Flooring

29.10 Wood

WOOD									
Fir, vertical grain, 1" x 4", nat incl. finish, grade B & better	1 Carp	255	.031	S.F.	2.74	1.38		4.12	5.15
C grade & better		255	.031		2.58	1.38		3.96	4.97
Maple, strip, 25/32" x 2-1/4", nat incl. finish, select		170	.047		5.20	2.08		7.28	8.90
#2 & better		170	.047		3.99	2.08		6.07	7.60
33/32" x 3-1/4", nat incl. finish, #1 grade		170	.047		4.40	2.08		6.48	8.05
#2 & better	▼	170	.047	▼	3.92	2.08		6	7.50
Oak, white or red, 25/32" x 2-1/4", nat incl. finish									
#1 camman	1 Carp	170	.047	S.F.	1.99	2.08		4.07	5.40
Select quartered, 2-1/4" wide		170	.047		2.99	2.08		5.07	6.50
Clear		170	.047		3.75	2.08		5.83	7.30
Prefinished, white oak, prime grade, 2-1/4" wide		170	.047		4.79	2.08		6.87	8.45
3-1/4" wide		185	.043		5.05	1.91		6.96	8.50
Ranch plank		145	.055		6.50	2.43		8.93	10.90
Hardwood blacks, 9" x 9", 25/32" thick		160	.050		5.75	2.21		7.96	9.75
Yellow pine, 3/4" x 3-1/8", T & G, C & better, nat incl. finish	▼	200	.040		1.49	1.76		3.25	4.35
Refinish wood floor, sand, 2 coats poly, wax, soft wood, min.	1 Clab	400	.020		.86	.70		1.56	2.03
Hard wood, max.		130	.062		1.28	2.16		3.44	4.73
Sanding and finishing, 2 coats polyurethane	▼	295	.027	▼	.86	.95		1.81	2.41
Subfloor and underlayment, see Section 06 16									
Transition molding, 2 1/4" wide, 5' long	1 Carp	19.20	.417	Ea.	15	18.40		33.40	45

64 66 – Wood Athletic Flooring

64 66.10 Gymnasium Flooring

GYMNASIUM FLOORING									
Gym floor, in mastic, over 2 ply felt, #2 & better									
25/32" thick maple	1 Carp	100	.080	S.F.	4.14	3.53		7.67	10
33/32" thick maple	▼	96	.082	▼	4.99	3.60		8.59	11.05

09 64 Wood Flooring

09 64 66 – Wood Athletic Flooring

09 64 66.10 Gymnasium Flooring		Daily	Labor-			2012 Bare Costs			
		Crew	Output	Hours	Unit	Material	Labor	Equipment	Total
1000	For 1/2" corkboard underlayment, add	1 Carp	750	.011	S.F.	.95	.47		1.42
1300	For #1 grade maple, add				↓	.49			.49
1600	Maple flooring, over sleepers, #2 & better								
1700	25/32" thick	1 Carp	85	.094	S.F.	4.54	4.15		8.69
1900	33/32" thick	"	83	.096		5.30	4.25		9.55
2000	For #1 grade, add					.53			.53
2200	For 3/4" subfloor, add	1 Carp	350	.023		1.18	1.01		2.19
2300	With two 1/2" subfloors, 25/32" thick	"	69	.116	↓	5.70	5.10		10.80
2500	Maple, incl. finish, #2 & btr., 25/32" thick, on rubber								
2600	Sleepers, with two 1/2" subfloors	1 Carp	76	.105	S.F.	6.10	4.64		10.74
2800	With steel spline, double connection to channels	"	73	.110		6.50	4.83		11.33
2900	For 33/32" maple, add					.70			.70
3100	For #1 grade maple, add					.53			.53
3500	For termite proofing all of the above, add					.28			.28
3700	Portable hardwood, prefinished panels	1 Carp	83	.096		8.15	4.25		12.40
3720	Insulated with polystyrene, 1" thick, add		165	.048		.70	2.14		2.84
3750	Running tracks, Sitka spruce surface, 25/32" x 2-1/4"		62	.129		14.90	5.70		20.60
3770	3/4" plywood surface, finished	↓	100	.080	↓	3.53	3.53		7.06

09 65 Resilient Flooring

09 65 10 – Resilient Tile Underlayment

09 65 10.10 Latex Underlayment

0010	LATEX UNDERLAYMENT								
3600	Latex underlayment, 1/8" thk., cementitious for resilient flooring	1 Tiff	160	.050	S.F.	.97	2.04		3.01
4000	Liquid, fortified				Gal.	29.50			29.50

09 65 13 – Resilient Base and Accessories

09 65 13.13 Resilient Base

0010	RESILIENT BASE								
0800	Base, cave, rubber or vinyl								
1100	Standard colors, 0.080" thick, 2-1/2" high	1 Tiff	315	.025	L.F.	1.05	1.04		2.09
1150	4" high		315	.025		1.01	1.04		2.05
1200	6" high		315	.025		1.55	1.04		2.59
1450	1/8" thick, 2-1/2" high		315	.025		1.05	1.04		2.09
1500	4" high		315	.025	↓	.72	1.04		1.76
1600	Corners, 2-1/2" high		315	.025	Ed.	1.70	1.04		2.74
1630	4" high		315	.025		3.15	1.04		4.19
1660	6" high	↓	315	.025	↓	3.15	1.04		4.19

09 65 13.23 Resilient Stair Treads and Risers

0010	RESILIENT STAIR TREADS AND RISERS								
0300	Rubber, matted tread, 12" wide, 5/16" thick, black	1 Tiff	115	.070	L.F.	13.50	2.84		16.34
0400	Colors		115	.070		14	2.84		16.84
0600	1/4" thick, black		115	.070		13	2.84		15.84
0700	Colors		115	.070		13.50	2.84		16.34
0900	Grip strip safety tread, colors, 5/16" thick		115	.070		17.60	2.84		20.44
1000	3/16" thick		120	.067	↓	12.75	2.72		15.47
1200	Landings, smooth sheet rubber, 1/8" thick		120	.067	S.F.	6.65	2.72		9.37
1300	3/16" thick		120	.067	"	8.35	2.72		11.07
1500	Nosings, 3" wide, 3/16" thick, black		140	.057	L.F.	3.69	2.33		6.02
1600	Colors		140	.057		4.09	2.33		6.42
1800	Risers, 7" high, 1/8" thick, flat	↓	250	.032	↓	6	1.30		7.30

65 Resilient Flooring

5 13 – Resilient Base and Accessories

13.23 Resilient Stair Treads and Risers	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Coved	1 Tlf	250	.032	L.F.	8.15	1.30		9.45	10.85
Vinyl, molded tread, 12" wide, colors, 1/8" thick		115	.070		6.65	2.84		9.49	11.45
1/4" thick		115	.070		8.35	2.84		11.19	13.35
Landing material, 1/8" thick		200	.040	S.F.	6.65	1.63		8.28	9.70
Riser, 7" high, 1/8" thick, coved		175	.046	L.F.	3.75	1.86		5.61	6.85
Tread and riser combined, 1/8" thick		80	.100	"	10	4.08		14.08	17

5 16 – Resilient Sheet Flooring

16.10 Rubber and Vinyl Sheet Flooring

RUBBER AND VINYL SHEET FLOORING

Linoleum, sheet goods	G	1 Tlf	360	.022	S.F.	4.28	.91	5.19	6.05
Rubber, sheet goods, 36" wide, 1/8" thick			120	.067		7.30	2.72	10.02	12.05
3/16" thick			100	.080		9.90	3.26	13.16	15.70
1/4" thick			90	.089		11.70	3.62	15.32	18.15
Vinyl sheet goods, backed, .065" thick, minimum			250	.032		3.95	1.30	5.25	6.25
Maximum			200	.040		3.83	1.63	5.46	6.60
.080" thick, minimum			230	.035		3.95	1.42	5.37	6.45
Maximum			200	.040		5.65	1.63	7.28	8.60
.125" thick, minimum			230	.035		4.57	1.42	5.99	7.15
Maximum			200	.040		6.85	1.63	8.48	9.95
Adhesive cement, 1 gallon per 200 to 300 S.F.					Gal.	26		26	28.50
Asphalt primer, 1 gallon per 300 S.F.						13.40		13.40	14.75
Emulsion, 1 gallon per 140 S.F.						17.25		17.25	19

5 19 – Resilient Tile Flooring

5 19.10 Miscellaneous Resilient Tile Flooring

MISCELLANEOUS RESILIENT TILE FLOORING

Cork tile, standard finish, 1/8" thick	G	1 Tlf	315	.025	S.F.	7.35	1.04	8.39	9.60
3/16" thick	G		315	.025		6.65	1.04	7.69	8.80
5/16" thick	G		315	.025		8.60	1.04	9.64	11
1/2" thick	G		315	.025		10.50	1.04	11.54	13.05
Urethane finish, 1/8" thick	G		315	.025		9.50	1.04	10.54	11.95
3/16" thick	G		315	.025		10.20	1.04	11.24	12.70
5/16" thick	G		315	.025		11.50	1.04	12.54	14.15
1/2" thick	G		315	.025		15.60	1.04	16.64	18.65
Rubber tile, marbled colors, 12" x 12", 1/8" thick			400	.020		7	.82	7.82	8.90
3/16" thick			400	.020		10.70	.82	11.52	12.95
Special tile, plain colors, 1/8" thick			400	.020		10.70	.82	11.52	12.95
3/16" thick			400	.020		10.70	.82	11.52	12.95
Raised, radiol or square, minimum			400	.020		9.90	.82	10.72	12.10
Maximum			400	.020		13.35	.82	14.17	15.90
For golf course, skating rink, etc., 1/4" thick			275	.029		13.35	1.19	14.54	16.45
Synthetic turf, 3/8" thick			90	.089		6.65	3.62	10.27	12.60
Interlocking 2' x 2' squares, 1/2" thick, not cemented, for playgrounds, minimum		1 Tlf	210	.038	S.F.	5	1.55	6.55	7.80
Maximum			190	.042		12.85	1.72	14.57	16.65
Vinyl composition tile, 12" x 12", 1/16" thick			500	.016		.94	.65	1.59	1.99
Embossed			500	.016		2.17	.65	2.82	3.35
Marbled			500	.016		2.17	.65	2.82	3.35
Solid			500	.016		2.79	.65	3.44	4.03
3/32" thick, embossed			500	.016		1.34	.65	1.99	2.43
Marbled			500	.016		2.49	.65	3.14	3.70
Solid			500	.016		2.31	.65	2.96	3.50
1/8" thick, marbled			500	.016		1.85	.65	2.50	3

09 65 Resilient Flooring

09 65 19 – Resilient Tile Flooring

09 65 19.10 Miscellaneous Resilient Tile Flooring		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	
							Labor	Equipment		
7400	Solid	1 Tlf	500	.016	S.F.	1.58	.65		2.23	
7450	Conductive		500	.016		6.40	.65		7.05	
7500	Vinyl tile, 12" x 12", .050" thick, minimum		500	.016		3.25	.65		3.90	
7550	Maximum		500	.016		6.50	.65		7.15	
7600	1/8" thick, minimum		500	.016		4.80	.65		5.45	
7650	Solid colors		500	.016		5.85	.65		6.50	
7700	Marbled or Trovertine pattern		500	.016		5.90	.65		6.55	
7750	Florentine pattern		500	.016		6.30	.65		6.95	
7800	Maximum	▼	500	.016	▼	14	.65		14.65	

09 65 33 – Conductive Resilient Flooring

09 65 33.10 Conductive Rubber and Vinyl Flooring

0010	CONDUCTIVE RUBBER AND VINYL FLOORING									
1700	Conductive flooring, rubber tile, 1/8" thick	1 Tlf	315	.025	S.F.	6.30	1.04		7.34	
1800	Homogeneous vinyl tile, 1/8" thick	"	315	.025	"	8.40	1.04		9.44	

09 66 Terrazzo Flooring

09 66 13 – Portland Cement Terrazzo Flooring

09 66 13.10 Portland Cement Terrazzo

0010	PORTLAND CEMENT TERRAZZO, cast-in-place	R096613-10								
0020	Cove base, 6" high, 16 ga. zinc	1 Mstz	20	.400	L.F.	3.04	16.15		19.19	
0100	Curb, 6" high and 6" wide		6	1.333		5.40	54		59.40	
0300	Divider strip for floors, 14 ga., 1-1/4" deep, zinc		375	.021		1.43	.86		2.29	
0400	Brass		375	.021		2.48	.86		3.34	
0600	Heavy top strip 1/4" thick, 1-1/4" deep, zinc		300	.027		1.87	1.08		2.95	
0900	Golv. bottoms, brass		300	.027		3.21	1.08		4.29	
1200	For thin set floors, 16 ga., 1/2" x 1/2", zinc		350	.023		.85	.92		1.77	
1300	Brass	▼	350	.023	▼	2.30	.92		3.22	
1500	Floor, bonded to concrete, 1-3/4" thick, gray cement	J-3	75	.213	S.F.	3.15	7.90	3.49	14.54	
1600	White cement, mud set		75	.213		3.51	7.90	3.49	14.90	
1800	Not bonded, 3" total thickness, gray cement		70	.229		3.93	8.50	3.74	16.17	
1900	White cement, mud set	▼	70	.229	▼	4.58	8.50	3.74	16.82	
2100	For Venetian terrazzo, 1" topping, odd					50%	50%			
2200	For heavy duty abrasive terrazzo, odd					50%	50%			
2700	Monolithic terrazzo, 1/2" thick									
2710	10' panels	J-3	125	.128	S.F.	3	4.75	2.09	9.84	
3000	Stairs, cast in place, pan filled treads		30	.533	L.F.	3.18	19.80	8.75	31.73	
3100	Treads and risers	▼	14	1.143	"	5.65	42.50	18.70	66.85	
3300	For stair landings, odd to floor prices						50%			
3400	Stair stringers and fascia	J-3	30	.533	S.F.	5.40	19.80	8.75	33.95	
3600	For abrasive metal nosings on stairs, odd		150	.107	L.F.	8.85	3.96	1.75	14.56	
3700	For abrasive surface finish, odd		600	.027	S.F.	1.47	.99	.44	2.90	
3900	For raised abrasive strips, odd		150	.107	L.F.	1.26	3.96	1.75	6.97	
4000	Wainscot, bonded, 1-1/2" thick		30	.533	S.F.	3.81	19.80	8.75	32.36	
4200	Epoxy terrazzo, 1/4" thick	▼	40	.400	"	5.35	14.85	6.55	26.75	
4300	Stone chips, onyx gemstone, per 50 lb. bag				Bog	16.30			16.30	

09 66 13.30 Terrazzo, Precast

0010	TERRAZZO, PRECAST									
0020	Base, 6" high, straight	1 Mstz	70	.114	L.F.	11.50	4.62		16.12	
0100	Cove		60	.133		12.50	5.40		17.90	
0300	8" high, straight	▼	60	.133	▼	11.15	5.40		16.55	

66 Terrazzo Flooring

66 13 – Portland Cement Terrazzo Flooring

66 13.30 Terrazzo, Precast	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	Bare Costs Equipment	Total	Total Incl O&P
Cove	1 Mstz	50	.160	L.F.	16.45	6.45		22.90	27.50
For white cement, odd					.44			.44	.48
For 16 ga. zinc toe strip, odd					1.68			1.68	1.85
Curbs, 4" x 4" high	1 Mstz	40	.200		31.50	8.10		39.60	46.50
8" x 8" high	"	30	.267	▼	36	10.75		46.75	55.50
Floor tiles, non-slip, 1" thick, 12" x 12"	D-1	60	.267	S.F.	18.90	10.65		29.55	37
1-1/4" thick, 12" x 12"		60	.267		20	10.65		30.65	38
16" x 16"		50	.320		21.50	12.75		34.25	43.50
1-1/2" thick, 16" x 16"	▼	45	.356		19.85	14.15		34	43.50
For Venetian terrazzo, odd					5.95			5.95	6.55
For white cement, odd				▼	.56			.56	.62
Stair treads, 1-1/2" thick, non-slip, three line pattern	2 Mstz	70	.229	L.F.	40	9.25		49.25	57.50
Nosing and two lines		70	.229		40	9.25		49.25	57.50
2" thick treads, straight		60	.267		44	10.75		54.75	64.50
Curved		50	.320		57.50	12.95		70.45	82.50
Stair risers, 1" thick, to 6" high, straight sections		60	.267		10.05	10.75		20.80	27
Cove		50	.320		14.55	12.95		27.50	35
Curved, 1" thick, to 6" high, vertical		48	.333		19.90	13.45		33.35	42
Cove		38	.421		37.50	17		54.50	66.50
Stair tread and riser, single piece, straight, minimum		60	.267		51	10.75		61.75	72
Maximum		40	.400		66	16.15		82.15	96
Curved tread and riser, minimum		40	.400		71.50	16.15		87.65	102
Maximum		32	.500		90	20		110	129
Stair stringers, notched, 1" thick		25	.640		29	26		55	70
2" thick		22	.727	▼	34.50	29.50		64	81
Stair landings, structural, non-slip, 1-1/2" thick		85	.188	S.F.	32	7.60		39.60	46
3" thick	▼	75	.213		45	8.60		53.60	62
Wainscot, 12" x 12" x 1" tiles	1 Mstz	12	.667		6.70	27		33.70	47
16" x 16" x 1-1/2" tiles	"	8	1	▼	13.95	40.50		54.45	75

66 16 – Terrazzo Floor Tile

66 16.10 Tile or Terrazzo Base

TILE OR TERRAZZO BASE	1 Mstz	150	.053	S.F.	.42	2.15		2.57	3.63
Scratch coat only	"	75	.107	"	.80	4.31		5.11	7.25
Scratch and brown coat only									

66 33 – Conductive Terrazzo Flooring

66 33.10 Conductive Terrazzo

CONDUCTIVE TERRAZZO	J-3	90	.178	S.F.	4.54	6.60	2.91	14.05	17.90
Banded conductive floor for hospitals		100	.160		4.99	5.95	2.62	13.56	17.10
Epoxy terrazzo, 1/4" thick, minimum		75	.213		5.80	7.90	3.49	17.19	22
Average	▼	60	.267	▼	6.15	9.90	4.36	20.41	26
Maximum									

09 67 Fluid-Applied Flooring

09 67 20 - Epoxy-Marble Chip Flooring

09 67 20.13 Elastomeric Liquid Flooring					Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Inst. Cost
										Labor	Equipment		
0010	Elastomeric Liquid Flooring												
0020	Cementitious acrylic, 1/4" thick				C-6	520	.092	S.F.	1.58	3.38	.11	5.07	
0100	3/8" thick				"	450	.107		2	3.91	.12	6.03	
0200	Methyl methacrylate, 1/4" thick				C-8A	3000	.016		5.70	.61		6.31	
0210	1/8" thick				"	3000	.016		3.12	.61		3.73	
0300	Cupric oxychloride, on bond coat, minimum				C-6	480	.100		3.41	3.66	.11	7.18	
0400	Maximum					420	.114		5.70	4.19	.13	10.02	
2400	Mastic, hot laid, 2 coat, 1-1/2" thick, standard, minimum					690	.070		3.95	2.55	.08	6.58	
2500	Maximum					520	.092		5.10	3.38	.11	8.59	
2700	Acid-proof, minimum					605	.079		5.10	2.91	.09	8.10	
2800	Maximum					350	.137		7.05	5	.16	12.21	
3000	Neoprene, trowelled on, 1/4" thick, minimum					545	.088		3.89	3.23	.10	7.22	
3100	Maximum					430	.112		5.35	4.09	.13	9.57	
4300	Polyurethane, with suspended vinyl chips, minimum					1065	.045		7.30	1.65	.05	9	
4500	Maximum				▼	860	.056	▼	10.50	2.04	.06	12.60	
09 67 20.16 Epoxy Terrazzo													
0010	Epoxy Terrazzo												
1800	Epoxy terrazzo, 1/4" thick, chemical resistant, minimum				J-3	200	.080	S.F.	5.65	2.97	1.31	9.93	
1900	Maximum					150	.107		8.55	3.96	1.75	14.26	
2100	Conductive, minimum					210	.076		7.50	2.83	1.25	11.58	
2200	Maximum				▼	160	.100	▼	9.85	3.71	1.64	15.20	
09 67 20.19 Polyacrylate Terrazzo													
0010	Polyacrylate Terrazzo												
3150	Polyacrylate, 1/4" thick, minimum				C-6	735	.065	S.F.	3.35	2.39	.07	5.81	
3170	Maximum					480	.100		4.26	3.66	.11	8.03	
3200	3/8" thick, minimum					620	.077		4.32	2.84	.09	7.25	
3220	Maximum					480	.100		6.05	3.66	.11	9.82	
3300	Conductive, 1/4" thick, minimum					450	.107		6.85	3.91	.12	10.88	
3330	Maximum					305	.157		9.45	5.75	.18	15.38	
3350	3/8" thick, minimum					365	.132		9	4.82	.15	13.97	
3370	Maximum					255	.188		12.05	6.90	.21	19.16	
3450	Granite, conductive, 1/4" thick, minimum					695	.069		8.80	2.53	.08	11.41	
3470	Maximum					420	.114		11.35	4.19	.13	15.67	
3500	3/8" thick, minimum					695	.069		12.85	2.53	.08	15.46	
3520	Maximum				▼	380	.126	▼	15.50	4.63	.14	20.27	
09 67 20.26 Quartz Flooring													
0010	Quartz Flooring												
0600	Epoxy, with colored quartz chips, broadcast, minimum				C-6	675	.071	S.F.	2.67	2.61	.08	5.36	
0700	Maximum					490	.098		3.85	3.59	.11	7.55	
0900	Trowelled, minimum					560	.086		3.40	3.14	.10	6.64	
1000	Maximum				▼	480	.100	▼	5.10	3.66	.11	8.87	
1200	Heavy duty epoxy topping, 1/4" thick,												
1300	500 to 1,000 S.F.				C-6	420	.114	S.F.	5.25	4.19	.13	9.57	
1500	1,000 to 2,000 S.F.					450	.107		4.76	3.91	.12	8.79	
1600	Over 10,000 S.F.					480	.100		4.39	3.66	.11	8.16	
3600	Polyester, with colored quartz chips, 1/16" thick, minimum					1065	.045		2.99	1.65	.05	4.69	
3700	Maximum					560	.086		3.95	3.14	.10	7.19	
3900	1/8" thick, minimum					810	.059		3.46	2.17	.07	5.70	
4000	Maximum					675	.071		4.48	2.61	.08	7.17	
4200	Polyester, heavy duty, compared to epoxy, add				▼	2590	.019	▼	1.44	.68	.02	2.14	

67 Fluid-Applied Flooring

7 66 – Fluid-Applied Athletic Flooring

66.10 Polyurethane	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
POLYURETHANE									
Thermoseal, prefabricated in place, indoor									
3/8" thick for basketball, gyms, etc.	1 Tlf	100	.080	S.F.	5.20	3.26		8.46	10.50
1/2" thick for professional sports		95	.084		6.95	3.43		10.38	12.70
Outdoor, 1/4" thick, smooth, for tennis		100	.080		5.40	3.26		8.66	10.75
Rough, for track, 3/8" thick		95	.084		6.25	3.43		9.68	11.95
Poured in place, indoor, with finish, 1/4" thick		80	.100		3.84	4.08		7.92	10.20
3/8" thick		65	.123		4.67	5		9.67	12.50
1/2" thick	▼	50	.160	▼	6.45	6.50		12.95	16.70

68 Carpeting

8 05 – Carpet Accessories

05.11 Flooring Transition Strip

FLOORING TRANSITION STRIP									
Clamp down brass divider, 12" strip, vinyl to carpet	1 Tlf	31.25	.256	Eq.	11.45	10.45		21.90	28
Vinyl to hard surface	"	31.25	.256	"	11.45	10.45		21.90	28

8 10 – Carpet Pad

10.10 Commercial Grade Carpet Pad

COMMERCIAL GRADE CARPET PAD									
Sponge rubber pad, minimum	1 Tlf	150	.053	S.Y.	4.18	2.17		6.35	7.80
Maximum		150	.053		10.40	2.17		12.57	14.65
Felt pad, minimum		150	.053		3.84	2.17		6.01	7.40
Maximum		150	.053		7.45	2.17		9.62	11.40
Bonded urethane pad, minimum		150	.053		4.57	2.17		6.74	8.25
Maximum		150	.053		8.20	2.17		10.37	12.20
Prime urethane pad, minimum		150	.053		3	2.17		5.17	6.50
Maximum	▼	150	.053	▼	5.25	2.17		7.42	9

8 13 – Tile Carpeting

13.10 Carpet Tile

CARPET TILE									
Tufted nylon, 18" x 18", hard back, 20 oz.	1 Tlf	80	.100	S.Y.	22	4.08		26.08	30.50
26 oz.		80	.100		38	4.08		42.08	47.50
Cushion back, 20 oz.		80	.100		28	4.08		32.08	36.50
26 oz.		80	.100		43.50	4.08		47.58	54
Tufted, 24" x 24", hard back, 24 oz. nylon		80	.100		28	4.08		32.08	37
35 oz.		80	.100		34.50	4.08		38.58	44
42 oz.	▼	80	.100	▼	45.50	4.08		49.58	56

8 16 – Sheet Carpeting

16.10 Sheet Carpet

SHEET CARPET									
Nylon, level loop, 26 oz., light to medium traffic	1 Tlf	75	.107	S.Y.	29	4.35		33.35	38.50
28 oz., light to medium traffic		75	.107		30	4.35		34.35	39.50
32 oz., medium traffic		75	.107		36.50	4.35		40.85	46.50
40 oz., medium to heavy traffic		75	.107		53.50	4.35		57.85	65.50
Nylon plush, 30 oz., medium traffic		57	.140		28.50	5.70		34.20	39.50
36 oz., medium traffic		75	.107		37.50	4.35		41.85	48
42 oz., medium to heavy traffic		70	.114		42.50	4.66		47.16	53.50
46 oz., medium to heavy traffic		70	.114		49.50	4.66		54.16	61.50
54 oz., heavy traffic	▼	70	.114	▼	54	4.66		58.66	66.50

09 68 Carpeting

09 68 16 – Sheet Carpeting

09 68 16.10 Sheet Carpet		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Inc.
							Labor	Equipment		
3340	60 oz., heavy traffic	1 Tlf	70	.114	S.Y.	74	4.66		78.66	
3665	Olefin, 24 oz., light to medium traffic		75	.107		17	4.35		21.35	
3670	26 oz., medium traffic		75	.107		18.40	4.35		22.75	
3680	28 oz., medium to heavy traffic		75	.107		20	4.35		24.35	
3700	32 oz., medium to heavy traffic		75	.107		25	4.35		29.35	
3730	42 oz., heavy traffic		70	.114		27	4.66		31.66	
4110	Wool, level loop, 40 oz., medium traffic		75	.107		126	4.35		130.35	
4500	50 oz., medium to heavy traffic		75	.107		127	4.35		131.35	
4700	Patterned, 32 oz., medium to heavy traffic		70	.114		126	4.66		130.66	
4900	48 oz., heavy traffic		70	.114		129	4.66		133.66	
5000	For less than full roll (approx. 1500 S.F.), add					25%				
5100	For small rooms, less than 12' wide, add						25%			
5200	For large open areas (no cuts), deduct						25%			
5600	For bound carpet baseboard, add	1 Tlf	300	.027	L.F.	2.75	1.09		3.84	
5610	For stairs, not incl. price of carpet, add	"	30	.267	Riser		10.85		10.85	
5620	For borders and patterns, add to labor						18%			
8950	For tackless, stretched installation, add padding from 09 68 10.10 to above									
9850	For brand-named specific fiber, add				S.Y.	25%				

09 68 20 – Athletic Carpet

09 68 20.10 Indoor Athletic Carpet		Crew	Daily Output	Labor-Hours	Unit	Material	Labor	Equipment	Total	Inc.
INDOOR ATHLETIC CARPET										
0010	Polyethylene, in rolls, no base incl., landscape surfaces	1 Tlf	275	.029	S.F.	3.47	1.19		4.66	
3700	Nylon action surface, 1/8" thick		275	.029		3.63	1.19		4.82	
3900	1/4" thick		275	.029		5.25	1.19		6.44	
4000	3/8" thick		275	.029		6.55	1.19		7.74	
4100	Golf tee surface with foam back		235	.034		6.50	1.39		7.89	
4200	Practice putting, knitted nylon surface		235	.034		5.50	1.39		6.89	
5500	Polyvinyl chloride, sheet goods for gyms, 1/4" thick		80	.100		9.20	4.08		13.28	
5600	3/8" thick		60	.133		10.60	5.45		16.05	

09 69 Access Flooring

09 69 13 – Rigid-Grid Access Flooring

09 69 13.10 Access Floors		Crew	Daily Output	Labor-Hours	Unit	Material	Labor	Equipment	Total	Inc.
ACCESS FLOORS										
0010	Access floor package including panel, pedestal, stringers & laminate cover									
0015	Computer room, greater than 6,000 S.F.	4 Corp	750	.043	S.F.	7.50	1.88		9.38	
0100	Less than 6,000 S.F.	2 Corp	375	.043		8.15	1.88		10.03	
0110	Office, greater than 6,000 S.F.	4 Corp	1050	.030		5.35	1.34		6.69	
0120	Panels, particle board or steel, 1250# load, no covering, under 6,000 S.F.	2 Corp	600	.027		3.75	1.18		4.93	
0250	Over 6,000 S.F.		640	.025		3.21	1.10		4.31	
0400	Aluminum, 24" panels		500	.032		33	1.41		34.41	
0600	For carpet covering, add					8.75			8.75	
0700	For vinyl floor covering, add					7			7	
0900	For high pressure laminate covering, add					5.45			5.45	
0910	For snap on stringer system, add	2 Corp	1000	.016		1.44	.71		2.15	
0950	Office applications, steel or concrete panels, no covering, over 6,000 S.F.	2 Corp	960	.017	S.F.	10.65	.74		11.39	
0960	Machine cutouts after initial installation	1 Corp	50	.160	Eq.	5.05	7.05		12.10	
1050	Pedestals, 6" to 12"	2 Corp	85	.188		8.35	8.30		16.65	
1100	Air conditioning grilles, 4" x 12"	1 Corp	17	.471		66	21		87	

69 Access Flooring

9 13 – Rigid-Grid Access Flooring

13.10 Access Floors	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
4" x 18"	1 Carp	14	.571	Ea.	90.50	25		115.50	139
Approach ramps, minimum	2 Carp	60	.267	S.F.	25.50	11.75		37.25	46
Maximum	"	40	.400	"	33.50	17.65		51.15	63.50
Handrail, 2 rail, aluminum	1 Carp	15	.533	L.F.	97.50	23.50		121	143

72 Wall Coverings

2 23 – Wallpapering

23.10 Wallpaper

WALLPAPER including sizing; add 10-30 percent waste @ takeoff R097223-10									
Aluminum foil	1 Pape	275	.029	S.F.	1.02	1.12		2.14	2.80
Copper sheets, .025" thick, vinyl backing		240	.033		5.45	1.28		6.73	7.90
Phenolic backing		240	.033		7.05	1.28		8.33	9.70
Cork tiles, light or dark, 12" x 12" x 3/16"		240	.033		4.47	1.28		5.75	6.85
5/16" thick		235	.034		3.80	1.31		5.11	6.15
1/4" basketweave		240	.033		5.85	1.28		7.13	8.35
1/2" natural, non-directional pattern		240	.033		7.50	1.28		8.78	10.15
3/4" natural, non-directional pattern		240	.033		10.45	1.28		11.73	13.40
Granular surface, 12" x 36", 1/2" thick		385	.021		1.26	.80		2.06	2.59
1" thick		370	.022		1.63	.83		2.46	3.04
Polyurethane coated, 12" x 12" x 3/16" thick		240	.033		3.95	1.28		5.23	6.25
5/16" thick		235	.034		5.65	1.31		6.96	8.15
Cork wallpaper, paperbacked, natural		480	.017		1.99	.64		2.63	3.15
Colors		480	.017		2.78	.64		3.42	4.02
Flexible wood veneer, 1/32" thick, plain woods		100	.080		2.36	3.08		5.44	7.20
Exotic woods	▼	95	.084	▼	3.58	3.24		6.82	8.80
Gypsum-based, fabric-backed, fire resistant									
for masonry walls, minimum, 21 oz./S.Y.	1 Pape	800	.010	S.F.	.87	.39		1.26	1.54
Maximum (small quantities)	"	640	.013		1.37	.48		1.85	2.23
Acrylic, modified, semi-rigid PVC, .028" thick	2 Carp	330	.048		1.13	2.14		3.27	4.53
.040" thick	"	320	.050		1.49	2.21		3.70	5.05
Vinyl wall covering, fabric-backed, lightweight, type 1 (12-15 oz./S.Y.)	1 Pape	640	.013		.82	.48		1.30	1.62
Medium weight, type 2 (20-24 oz./S.Y.)	▼	480	.017		.90	.64		1.54	1.95
Heavy weight, type 3 (28 oz./S.Y.)	▼	435	.018	▼	1.52	.71		2.23	2.73
Adhesive, 5 gal. lots (18 S.Y./gal.)				Gal.	11.10			11.10	12.20
Wallpaper, average workmanship, solid pattern, low cost paper	1 Pape	640	.013	S.F.	.37	.48		.85	1.13
basic patterns (matching required), avg. cost paper		535	.015		.97	.58		1.55	1.93
Paper at \$85 per double roll, quality workmanship	▼	435	.018	▼	2.47	.71		3.18	3.78
Linen wall covering, paper backed									
Flame treatment, minimum				S.F.	.97			.97	1.07
Maximum					1.65			1.65	1.82
Glass cloth, natural fabric	G 1 Pape	400	.020		2.99	.77		3.76	4.44
Glass cloths with lining paper, minimum	G	400	.020		.78	.77		1.55	2.01
Maximum	G	350	.023	▼	2.49	.88		3.37	4.06

09 77 Special Wall Surfacing

09 77 33 – Fiberglass Reinforced Panels

09 77 33.10 Fiberglass Reinforced Plastic Panels		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
FIBERGLASS REINFORCED PLASTIC PANELS, .090" thick							Labor	Equipment	
0010	On walls, adhesive mounted, embossed surface	2 Corp	640	.025	S.F.	1.15	1.10		2.25
0030	Smooth surface		640	.025		1.41	1.10		2.51
0040	Fire rated, embossed surface		640	.025		2.05	1.10		3.15
0050	Nylon rivet mounted, on drywall, embossed surface		480	.033		1.15	1.47		2.62
0060	Smooth surface		480	.033		1.41	1.47		2.88
0070	Fire rated, embossed surface		480	.033		2.05	1.47		3.52
0080	On masonry, embossed surface		320	.050		1.15	2.21		3.36
0090	Smooth surface		320	.050		1.41	2.21		3.62
0100	Fire rated, embossed surface		320	.050		2.05	2.21		4.26
0110	Nylon rivet and adhesive mounted, on drywall, embossed surface		240	.067		1.30	2.94		4.24
0120	Smooth surface		240	.067		1.30	2.94		4.24
0130	Fire rated, embossed surface		240	.067		2.26	2.94		5.20
0140	On masonry, embossed surface		190	.084		1.30	3.71		5.01
0150	Smooth surface		190	.084		1.30	3.71		5.01
0160	Fire rated, embossed surface		190	.084		2.26	3.71		5.97
0170	For moldings add	1 Corp	250	.032	L.F.	.32	1.41		1.73
0180	On ceilings, for lay in grid system, embossed surface		400	.020	S.F.	1.15	.88		2.03
0190	Smooth surface		400	.020		1.41	.88		2.29
0200	Fire rated, embossed surface		400	.020		2.05	.88		2.93

09 77 43 – Panel Systems

09 77 43.20 Slatwall Panels and Accessories

0010	SLATWALL PANELS AND ACCESSORIES								
0100	Slotwall panel, 4' x 8' x 3/4" T, MDF, point grade	1 Corp	500	.016	S.F.	1.32	.71		2.03
0110	Melamine finish		500	.016		1.87	.71		2.58
0120	High pressure plastic laminate finish		500	.016		3.25	.71		3.96
0130	Aluminum channel inserts, add					2.94			2.94
0200	Accessories, corner forms, 8' L				L.F.	4.28			4.28
0210	T-connector, 8' L					5.15			5.15
0220	J-mold, 8' L					1.33			1.33
0230	Edge cap, 8' L					2.05			2.05
0240	Finish end cap, 8' L					3.18			3.18
0300	Display hook, metal, 4" L				Eo.	.44			.44
0310	6" L					.49			.49
0320	8" L					.54			.54
0330	10" L					.58			.58
0340	12" L					.63			.63
0350	Acrylic, 4" L					.91			.91
0360	6" L					1.05			1.05
0370	8" L					1.10			1.10
0380	10" L					1.12			1.12
0400	Waterfall hanger, metal, 12" - 16"					4.75			4.75
0410	Acrylic					9.85			9.85
0500	Shelf bracket, metal, 8"					4.50			4.50
0510	10"					4.62			4.62
0520	12"					4.52			4.52
0530	14"					4.86			4.86
0540	16"					6.10			6.10
0550	Acrylic, 8"					3.04			3.04
0560	10"					3.37			3.37
0570	12"					3.72			3.72
0580	14"					3.99			3.99

77 Special Wall Surfacing

743 - Panel Systems

43.20 Slatwall Panels and Accessories

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Shelf, acrylic, 12" x 16" x 1/4"				Eq.	19.90			19.90	22
12" x 24" x 1/4"				▼	30			30	33

81 Acoustic Insulation

116 - Acoustic Blanket Insulation

16.10 Sound Attenuation Blanket

SOUND ATTENUATION BLANKET

Blanket, 1" thick	1 Corp	925	.009	S.F.	.25	.38		.63	.87
1-1/2" thick		920	.009		.25	.38		.63	.87
2" thick		915	.009		.34	.39		.73	.96
3" thick		910	.009		.50	.39		.89	1.15
Thermal or ocoustical batt above ceiling, 2" thick		900	.009		.49	.39		.88	1.14
3" thick		900	.009		.74	.39		1.13	1.41
4" thick	▼	900	.009		.92	.39		1.31	1.61
Urethane plastic foam, open cell, on wall, 2" thick	2 Corp	2050	.008		3.05	.34		3.39	3.89
3" thick		1550	.010		4.05	.46		4.51	5.15
4" thick		1050	.015		5.70	.67		6.37	7.30
On ceiling, 2" thick		1700	.009		3.04	.42		3.46	3.98
3" thick		1300	.012		4.05	.54		4.59	5.30
4" thick	▼	900	.018	▼	5.70	.78		6.48	7.45
Nylon matting 0.4" thick, with carbon black spinerette plus polyester fabric, on floor	D-7	1600	.010	S.F.	1.30	.36		1.66	1.97
Fiberglass reinf. backer board underlayment, 7/16" thick, on floor	"	1500	.011	"	1.90	.39		2.29	2.66

84 Acoustic Room Components

413 - Fixed Sound-Absorptive Panels

413.10 Fixed Panels

FIXED PANELS Perforated steel facing, painted with

Fiberglass or mineral filler, no backs, 2-1/4" thick, modular spoke units, ceiling or wall hung, white or colored	1 Corp	100	.080	S.F.	8.55	3.53		12.08	14.85
Fiberglass sound deadening panels, 1/2" thick	"	600	.013	"	.32	.59		.91	1.25
Fiberglass panels, 4' x 8' x 1" thick, with gloss cloth face for walls, cemented	1 Corp	155	.052	S.F.	7.90	2.28		10.18	12.20
1-1/2" thick, dacron covered, inner aluminum frame, wall mounted	1 Corp	300	.027	S.F.	8.75	1.18		9.93	11.40
Mineral fiberglass panels, fabric covered, 30" x 108", 3/4" thick, concealed spline, wall mounted	1 Corp	150	.053	S.F.	6.25	2.35		8.60	10.50

436 - Sound-Absorbing Ceiling Units

436.10 Barriers

BARRIERS Plenum

Aluminum foil, fiberglass reinf., parallel with joists	1 Corp	275	.029	S.F.	.92	1.28		2.20	2.98
Perpendicular to joists		180	.044		.92	1.96		2.88	4.03
Aluminum mesh, kraft paperbacked		275	.029		.77	1.28		2.05	2.82
Fiberglass batts, kraft faced, 3-1/2" thick		1400	.006		.36	.25		.61	.79
6" thick		1300	.006		.65	.27		.92	1.14
Sheet lead, 1 lb., 1/64" thick, perpendicular to joists		150	.053		4.92	2.35		7.27	9
Vinyl foam reinforced, 1/8" thick, 1.0 lb. per S.F.	▼	150	.053	▼	4.40	2.35		6.75	8.45

09 91 Painting

09 91 03 - Paint Restoration

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Ind. Bld.
09 91 03.20 Sanding							Labor	Equipment		
0010	SANDING and puttying interior trim, compared to R099100-10									
0100	Painting 1 coat, on quality work				L.F.		100%			
0300	Medium work						50%			
0400	Industrial grade						25%			
0500	Surface protection, placement and removal									
0510	Basic drop cloths	1 Pard	6400	.001	S.F.		.05			.05
0520	Masking with paper		800	.010		.05	.38			.43
0530	Volume cover up (using plastic sheathing, or building paper)		16000	.001			.02			.02
09 91 03.30 Exterior Surface Preparation										
0010	EXTERIOR SURFACE PREPARATION R099100-10									
0015	Doors, per side, nat incl. frames or trim									
0020	Scrape & sand									
0030	Wood, flush	1 Pard	616	.013	S.F.		.50			.50
0040	Wood, detail		496	.016			.62			.62
0050	Wood, louvered		280	.029			1.09			1.09
0060	Wood, overhead		616	.013			.50			.50
0070	Wire brush									
0080	Metal, flush	1 Pard	640	.013	S.F.		.48			.48
0090	Metal, detail		520	.015			.59			.59
0100	Metal, louvered		360	.022			.85			.85
0110	Metal or fibr., overhead		640	.013			.48			.48
0120	Metal, roll up		560	.014			.55			.55
0130	Metal, bulkhead		640	.013			.48			.48
0140	Power wash, based on 2500 lb. operating pressure									
0150	Metal, flush	A-1H	2240	.004	S.F.		.13	.03		.16
0160	Metal, detail		2120	.004			.13	.03		.16
0170	Metal, louvered		2000	.004			.14	.03		.17
0180	Metal or fibr., overhead		2400	.003			.12	.03		.15
0190	Metal, roll up		2400	.003			.12	.03		.15
0200	Metal, bulkhead		2200	.004			.13	.03		.16
0400	Windows, per side, nat incl. trim									
0410	Scrape & sand									
0420	Wood, 1-2 lite	1 Pard	320	.025	S.F.		.96			.96
0430	Wood, 3-6 lite		280	.029			1.09			1.09
0440	Wood, 7-10 lite		240	.033			1.27			1.27
0450	Wood, 12 lite		200	.040			1.53			1.53
0460	Wood, Bay/Bow		320	.025			.96			.96
0470	Wire brush									
0480	Metal, 1-2 lite	1 Pard	480	.017	S.F.		.64			.64
0490	Metal, 3-6 lite		400	.020			.77			.77
0500	Metal, Bay/Bow		480	.017			.64			.64
0510	Power wash, based on 2500 lb. operating pressure									
0520	1-2 lite	A-1H	4400	.002	S.F.		.06	.02		.08
0530	3-6 lite		4320	.002			.06	.02		.08
0540	7-10 lite		4240	.002			.07	.02		.09
0550	12 lite		4160	.002			.07	.02		.09
0560	Bay/Bow		4400	.002			.06	.02		.08
0600	Siding, scrape and sand, light=10-30%, med.=30-70%									
0610	Heavy=70-100% of surface to sand									
0650	Texture 1-11, light	1 Pard	480	.017	S.F.		.64			.64
0660	Med.		440	.018			.70			.70
0670	Heavy		360	.022			.85			.85

91 Painting

1 03 - Paint Restoration

03.30 Exterior Surface Preparation	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
Wood shingles, shakes, light	1 Pord	440	.018	S.F.		.70		.70	1.04
Med.		360	.022			.85		.85	1.27
Heavy		280	.029			1.09		1.09	1.63
Clapboard, light		520	.015			.59		.59	.88
Med.		480	.017			.64		.64	.95
Heavy	▼	400	.020	▼		.77		.77	1.14
Wire brush									
Aluminum, light	1 Pord	600	.013	S.F.		.51		.51	.76
Med.		520	.015			.59		.59	.88
Heavy	▼	440	.018	▼		.70		.70	1.04
Pressure wash, based on 2500 lb. operating pressure									
Stucco	A-1H	3080	.003	S.F.		.09	.02	.11	.16
Aluminum or vinyl		3200	.003			.09	.02	.11	.16
Siding, masonry, brick & block	▼	2400	.003	▼		.12	.03	.15	.21
Miscellaneous, wire brush									
Metal, pedestrian gate	1 Pord	100	.080	S.F.		3.06		3.06	4.58
For chemical washing, see Section 04 01 30									
For steam cleaning, see Section 04 01 30.20									
For sand blasting, see Section 03 35 29.60 and 05 01 10.51									

03.40 Interior Surface Preparation

INTERIOR SURFACE PREPARATION		R099100-10							
Doors, per side, not incl. frames or trim									
Scrape & sand									
Wood, flush	1 Pord	616	.013	S.F.		.50		.50	.74
Wood, detail		496	.016			.62		.62	.92
Wood, louvered	▼	280	.029	▼		1.09		1.09	1.63
Wire brush									
Metal, flush	1 Pord	640	.013	S.F.		.48		.48	.72
Metal, detail		520	.015			.59		.59	.88
Metal, louvered	▼	360	.022	▼		.85		.85	1.27
Hand wash									
Wood, flush	1 Pord	2160	.004	S.F.		.14		.14	.21
Wood, detailed		2000	.004			.15		.15	.23
Wood, louvered		1360	.006			.22		.22	.34
Metal, flush		2160	.004			.14		.14	.21
Metal, detail		2000	.004			.15		.15	.23
Metal, louvered	▼	1360	.006	▼		.22		.22	.34
Windows, per side, not incl. trim									
Scrape & sand									
Wood, 1-2 lite	1 Pord	360	.022	S.F.		.85		.85	1.27
Wood, 3-6 lite		320	.025			.96		.96	1.43
Wood, 7-10 lite		280	.029			1.09		1.09	1.63
Wood, 12 lite		240	.033			1.27		1.27	1.91
Wood, Bay/Bow	▼	360	.022	▼		.85		.85	1.27
Wire brush									
Metal, 1-2 lite	1 Pord	520	.015	S.F.		.59		.59	.88
Metal, 3-6 lite		440	.018			.70		.70	1.04
Metal, Bay/Bow	▼	520	.015	▼		.59		.59	.88
Walls, sanding, light=10-30%, medium - 30-70%, heavy=70-100% of surface to sand									
Walls, sand									
Gypsum board or plaster, light	1 Pord	3077	.003	S.F.		.10		.10	.15

09 91 Painting

09 91 03 - Paint Restoration

09 91 03.40 Interior Surface Preparation		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Ind
							Labor	Equipment		
0670	Gypsum board or plaster, medium	1 Pord	2160	.004	S.F.		.14		.14	
0680	Gypsum board or plaster, heavy		923	.009			.33		.33	
0690	Wood, T&G, light		2400	.003			.13		.13	
0700	Wood, T&G, med.		1600	.005			.19		.19	
0710	Wood, T&G, heavy	▼	800	.010	▼		.38		.38	
0720	Walls, wash									
0730	Gypsum board or plaster	1 Pord	3200	.003	S.F.		.10		.10	
0740	Wood, T&G		3200	.003			.10		.10	
0750	Masonry, brick & block, smooth		2800	.003			.11		.11	
0760	Masonry, brick & block, coarse	▼	2000	.004	▼		.15		.15	
8000	For chemical washing, see Section 04 01 30									
8010	For steam cleaning, see Section 04 01 30.20									
8020	For sand blasting, see Section 03 35 29.60 and 05 01 10.51									

09 91 13 - Exterior Painting

09 91 13.30 Fences										
	FENCES	R099100-20								
0100	Chain link or wire metal, one side, water base									
0110	Roll & brush, first coat	1 Pord	960	.008	S.F.	.07	.32		.39	
0120	Second coat		1280	.006		.06	.24		.30	
0130	Spray, first coat		2275	.004		.07	.13		.20	
0140	Second coat	▼	2600	.003	▼	.07	.12		.19	
0150	Picket, water base									
0160	Roll & brush, first coat	1 Pord	865	.009	S.F.	.07	.35		.42	
0170	Second coat		1050	.008		.07	.29		.36	
0180	Spray, first coat		2275	.004		.07	.13		.20	
0190	Second coat	▼	2600	.003	▼	.07	.12		.19	
0200	Stockade, water base									
0210	Roll & brush, first coat	1 Pord	1040	.008	S.F.	.07	.29		.36	
0220	Second coat		1200	.007		.07	.26		.33	
0230	Spray, first coat		2275	.004		.07	.13		.20	
0240	Second coat	▼	2600	.003	▼	.07	.12		.19	

09 91 13.42 Miscellaneous, Exterior

09 91 13.42 MISCELLANEOUS, EXTERIOR										
		R099100-20								
0010	For painting metals, see Section 09 97 13.23									
0100	Railing, ext., decorative wood, incl. cap & baluster									
0110	Newels & spindles @ 12" O.C.									
0120	Brushwork, stain, sand, seal & varnish									
0130	First coat	1 Pord	90	.089	L.F.	.73	3.40		4.13	
0140	Second coat	"	120	.067	"	.73	2.55		3.28	
0150	Rough sawn wood, 42" high, 2" x 2" verticals, 6" O.C.									
0160	Brushwork, stain, each coat	1 Pord	90	.089	L.F.	.24	3.40		3.64	
0170	Wrought iron, 1" rail, 1/2" sq. verticals									
0180	Brushwork, zinc chromate, 60" high, bars 6" O.C.									
0190	Primer	1 Pord	130	.062	L.F.	.83	2.35		3.18	
0200	Finish coat		130	.062		1.09	2.35		3.44	
0210	Additional coat	▼	190	.042	▼	1.27	1.61		2.88	
0220	Shutters or blinds, single panel, 2' x 4', point all sides									
0230	Brushwork, primer	1 Pord	20	.400	Eq.	.62	15.30		15.92	
0240	Finish coat, exterior latex		20	.400		.54	15.30		15.84	
0250	Primer & 1 coat, exterior latex		13	.615		1.02	23.50		24.52	
0260	Spray, primer		35	.229		.90	8.75		9.65	
0270	Finish coat, exterior latex	▼	35	.229	▼	1.14	8.75		9.89	

91 Painting

1 13 - Exterior Painting

13.42 Miscellaneous, Exterior	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Primer & 1 coat, exterior latex	1 Pard	20	.400	Eq.	.97	15.30		16.27	24
For louvered shutters, add				S.F.	10%				
Stair stringers, exterior, metal									
Roll & brush, zinc chromate, to 14", each coat	1 Pard	320	.025	L.F.	.36	.96		1.32	1.83
Rough sawn wood, 4" x 12"									
Roll & brush, exterior latex, each coat	1 Pard	215	.037	L.F.	.08	1.42		1.50	2.22
Trellis/lattice, 2" x 2" @ 3" O.C. with 2" x 8" supports									
Spray, latex, per side, each coat	1 Pard	475	.017	S.F.	.08	.64		.72	1.05
Decking, ext., sealer, alkyd, brushwork, sealer coat		1140	.007		.09	.27		.36	.50
1st coat		1140	.007		.09	.27		.36	.50
2nd coat		1300	.006		.07	.24		.31	.42
Paint, alkyd, brushwork, primer coat		1140	.007		.09	.27		.36	.50
1st coat		1140	.007		.16	.27		.43	.57
2nd coat		1300	.006		.12	.24		.36	.48
Sand paint, alkyd, brushwork, 1 coat		150	.053		.16	2.04		2.20	3.22

13.60 Siding Exterior

SIDING EXTERIOR, Alkyd (oil base)	R099100-10								
Steel siding, oil base, paint 1 coat, brushwork	2 Pard	2015	.008	S.F.	.13	.30		.43	.59
Spray		4550	.004		.19	.13		.32	.41
Paint 2 coats, brushwork		1300	.012		.25	.47		.72	.98
Spray		2750	.006		.17	.22		.39	.52
Stucco, rough, oil base, paint 2 coats, brushwork		1300	.012		.25	.47		.72	.98
Roller		1625	.010		.27	.38		.65	.85
Spray		2925	.005		.28	.21		.49	.62
Texture 1-11 or clapboard, oil base, primer coat, brushwork		1300	.012		.12	.47		.59	.83
Spray		4550	.004		.12	.13		.25	.33
Paint 2 coats, brushwork		810	.020		.37	.76		1.13	1.53
Spray		2600	.006		.41	.24		.65	.80
Stain 2 coats, brushwork		950	.017		.16	.64		.80	1.14
Spray		3050	.005		.18	.20		.38	.50
Wood shingles, oil base primer coat, brushwork		1300	.012		.11	.47		.58	.82
Spray		3900	.004		.10	.16		.26	.34
Paint 2 coats, brushwork		810	.020		.31	.76		1.07	1.47
Spray		2275	.007		.29	.27		.56	.72
Stain 2 coats, brushwork		950	.017		.16	.64		.80	1.14
Spray		2660	.006		.22	.23		.45	.58
For latex paint, deduct					10%				
For work over 12' H, from pipe scaffolding, add						15%			
For work over 12' H, from extension ladder, add						25%			
For work over 12' H, from swing staging, add						35%			

1 13.62 Siding, Misc.

SIDING, MISC., latex paint	R099100-10								
Aluminum siding									
Brushwork, primer	R099100-20	2 Pard	2275	.007	S.F.	.06	.27	.33	.46
Finish coat, exterior latex			2275	.007		.05	.27	.32	.46
Primer & 1 coat exterior latex			1300	.012		.12	.47	.59	.83
Primer & 2 coats exterior latex			975	.016		.17	.63	.80	1.12
Mineral fiber shingles									
Brushwork, primer		2 Pard	1495	.011	S.F.	.12	.41	.53	.74
Finish coat, industrial enamel			1495	.011		.15	.41	.56	.78
Primer & 1 coat enamel			810	.020		.27	.76	1.03	1.42
Primer & 2 coats enamel			540	.030		.42	1.13	1.55	2.15

09 91 Painting

09 91 13 - Exterior Painting

09 91 13.62 Siding, Misc.		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Notes
0200	Roll, primer	2 Pard	1625	.010	S.F.	.13	.38		.51	
0210	Finish coat, industrial enamel		1625	.010		.16	.38		.54	
0220	Primer & 1 coat enamel		975	.016		.29	.63		.92	
0230	Primer & 2 coats enamel		650	.025		.45	.94		1.39	
0240	Spray, primer		3900	.004		.10	.16		.26	
0250	Finish coat, industrial enamel		3900	.004		.14	.16		.30	
0260	Primer & 1 coat enamel		2275	.007		.24	.27		.51	
0270	Primer & 2 coats enamel		1625	.010		.37	.38		.75	
0280	Waterproof sealer, first coat		4485	.004		.08	.14		.22	
0290	Second coat	▼	5235	.003	▼	.07	.12		.19	
0300	Rough wood incl. shingles, shakes or rough sawn siding									
0310	Brushwork, primer	2 Pard	1280	.013	S.F.	.12	.48		.60	
0320	Finish coat, exterior latex		1280	.013		.09	.48		.57	
0330	Primer & 1 coat exterior latex		960	.017		.21	.64		.85	
0340	Primer & 2 coats exterior latex		700	.023		.30	.87		1.17	
0350	Roll, primer		2925	.005		.17	.21		.38	
0360	Finish coat, exterior latex		2925	.005		.11	.21		.32	
0370	Primer & 1 coat exterior latex		1790	.009		.27	.34		.61	
0380	Primer & 2 coats exterior latex		1300	.012		.38	.47		.85	
0390	Spray, primer		3900	.004		.14	.16		.30	
0400	Finish coat, exterior latex		3900	.004		.08	.16		.24	
0410	Primer & 1 coat exterior latex		2600	.006		.22	.24		.46	
0420	Primer & 2 coats exterior latex		2080	.008		.31	.29		.60	
0430	Waterproof sealer, first coat		4485	.004		.14	.14		.28	
0440	Second coat	▼	4485	.004	▼	.08	.14		.22	
0450	Smooth wood incl. butt, T&G, beveled, drop or B&B siding									
0460	Brushwork, primer	2 Pard	2325	.007	S.F.	.09	.26		.35	
0470	Finish coat, exterior latex		1280	.013		.09	.48		.57	
0480	Primer & 1 coat exterior latex		800	.020		.18	.77		.95	
0490	Primer & 2 coats exterior latex		630	.025		.27	.97		1.24	
0500	Roll, primer		2275	.007		.10	.27		.37	
0510	Finish coat, exterior latex		2275	.007		.10	.27		.37	
0520	Primer & 1 coat exterior latex		1300	.012		.20	.47		.67	
0530	Primer & 2 coats exterior latex		975	.016		.29	.63		.92	
0540	Spray, primer		4550	.004		.08	.13		.21	
0550	Finish coat, exterior latex		4550	.004		.08	.13		.21	
0560	Primer & 1 coat exterior latex		2600	.006		.16	.24		.40	
0570	Primer & 2 coats exterior latex		1950	.008		.24	.31		.55	
0580	Waterproof sealer, first coat		5230	.003		.08	.12		.20	
0590	Second coat	▼	5980	.003	▼	.08	.10		.18	
0600	For oil base paint, add				▼	10%				

09 91 13.70 Doors and Windows, Exterior

0010	DOORS AND WINDOWS, EXTERIOR	R099100-10								
0100	Door frames & trim, only									
0110	Brushwork, primer	R099100-20	1 Pard	512	.016	L.F.	.06	.60	.66	
0120	Finish coat, exterior latex			512	.016		.07	.60	.67	
0130	Primer & 1 coat, exterior latex			300	.027		.12	1.02	1.14	
0140	Primer & 2 coats, exterior latex		▼	265	.030	▼	.19	1.15	1.34	
0150	Doors, flush, both sides, incl. frame & trim									
0160	Roll & brush, primer		1 Pard	10	.800	Ea.	4.26	30.50	34.76	5
0170	Finish coat, exterior latex			10	.800		5.10	30.50	35.60	5
0180	Primer & 1 coat, exterior latex			7	1.143	▼	9.35	43.50	52.85	7

91 Painting

113 - Exterior Painting

13.70 Doors and Windows, Exterior	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
						Labor	Equipment		
Primer & 2 coats, exterior lotex	1 Pord	5	1.600	Eo.	14.45	61		75.45	107
Brushwork, stain, sealer & 2 coats polyurethane	↓	4	2	↓	25.50	76.50		102	142
Doors, French, both sides, 10-15 lite, incl. frame & trim									
Brushwork, primer	1 Pord	6	1.333	Eo.	2.13	51		53.13	79
Finish coat, exterior lotex	↓	6	1.333	↓	2.55	51		53.55	79.50
Primer & 1 coat, exterior lotex	↓	3	2.667	↓	4.67	102		106.67	158
Primer & 2 coats, exterior lotex	↓	2	4	↓	7.05	153		160.05	237
Brushwork, stain, sealer & 2 coats polyurethane	↓	2.50	3.200	↓	9.30	122		131.30	193
Doors, louvered, both sides, incl. frame & trim									
Brushwork, primer	1 Pord	7	1.143	Eo.	4.26	43.50		47.76	70
Finish coat, exterior lotex	↓	7	1.143	↓	5.10	43.50		48.60	71
Primer & 1 coat, exterior lotex	↓	4	2	↓	9.35	76.50		85.85	124
Primer & 2 coats, exterior lotex	↓	3	2.667	↓	14.15	102		116.15	169
Brushwork, stain, sealer & 2 coats polyurethane	↓	4.50	1.778	↓	25.50	68		93.50	130
Doors, panel, both sides, incl. frame & trim									
Roll & brush, primer	1 Pord	6	1.333	Eo.	4.26	51		55.26	81
Finish coat, exterior lotex	↓	6	1.333	↓	5.10	51		56.10	82
Primer & 1 coat, exterior lotex	↓	3	2.667	↓	9.35	102		111.35	163
Primer & 2 coats, exterior lotex	↓	2.50	3.200	↓	14.15	122		136.15	199
Brushwork, stain, sealer & 2 coats polyurethane	↓	3	2.667	↓	25.50	102		127.50	181
Windows, per ext. side, based on 15 S.F.									
1 to 6 lite									
Brushwork, primer	1 Pord	13	.615	Eo.	.84	23.50		24.34	36
Finish coat, exterior lotex	↓	13	.615	↓	1	23.50		24.50	36
Primer & 1 coat, exterior lotex	↓	8	1	↓	1.85	38.50		40.35	59
Primer & 2 coats, exterior lotex	↓	6	1.333	↓	2.79	51		53.79	79.50
Stain, sealer & 1 coat varnish	↓	7	1.143	↓	3.67	43.50		47.17	69.50
7 to 10 lite									
Brushwork, primer	1 Pord	11	.727	Eo.	.84	28		28.84	42.50
Finish coat, exterior lotex	↓	11	.727	↓	1	28		29	42.50
Primer & 1 coat, exterior lotex	↓	7	1.143	↓	1.85	43.50		45.35	67.50
Primer & 2 coats, exterior lotex	↓	5	1.600	↓	2.79	61		63.79	94.50
Stain, sealer & 1 coat varnish	↓	6	1.333	↓	3.67	51		54.67	80.50
12 lite									
Brushwork, primer	1 Pord	10	.800	Eo.	.84	30.50		31.34	47
Finish coat, exterior lotex	↓	10	.800	↓	1	30.50		31.50	47
Primer & 1 coat, exterior lotex	↓	6	1.333	↓	1.85	51		52.85	78.50
Primer & 2 coats, exterior lotex	↓	5	1.600	↓	2.79	61		63.79	94.50
Stain, sealer & 1 coat varnish	↓	6	1.333	↓	3.68	51		54.68	80.50
For oil base point, odd				↓	10%				

113.80 Trim, Exterior

TRIM, EXTERIOR	R099100-10								
Door frames & trim (see Doors, interior or exterior)									
Fascia, lotex point, one coat coverage	R099100-20								
1" x 4", brushwork	1 Pord	640	.013	L.F.	.02	.48		.50	.74
Roll		1280	.006		.02	.24		.26	.38
Spray		2080	.004		.02	.15		.17	.24
1" x 6" to 1" x 10", brushwork		640	.013		.07	.48		.55	.80
Roll		1230	.007		.07	.25		.32	.45
Spray		2100	.004		.06	.15		.21	.28
1" x 12", brushwork		640	.013		.07	.48		.55	.80
Roll		1050	.008		.07	.29		.36	.52

09 91 Painting

09 91 13 - Exterior Painting

09 91 13.80 Trim, Exterior		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total
							Labor	Equipment		Unit
0200	Spray	1 Pord	2200	.004	L.F.	.06	.14		.20	
0210	Gutters & downspouts, metal, zinc chromate paint									
0220	Brushwork, gutters, 5", first coat	1 Pord	640	.013	L.F.	.38	.48		.86	
0230	Second coat		960	.008		.36	.32		.68	
0240	Third coat		1280	.006		.29	.24		.53	
0250	Downspouts, 4", first coat		640	.013		.38	.48		.86	
0260	Second coat		960	.008		.36	.32		.68	
0270	Third coat	↓	1280	.006	↓	.29	.24		.53	
0280	Gutters & downspouts, wood									
0290	Brushwork, gutters, 5", primer	1 Pord	640	.013	L.F.	.06	.48		.54	
0300	Finish coat, exterior latex		640	.013		.06	.48		.54	
0310	Primer & 1 coat exterior latex		400	.020		.12	.77		.89	
0320	Primer & 2 coats exterior latex		325	.025		.19	.94		1.13	
0330	Downspouts, 4", primer		640	.013		.06	.48		.54	
0340	Finish coat, exterior latex		640	.013		.06	.48		.54	
0350	Primer & 1 coat exterior latex		400	.020		.12	.77		.89	
0360	Primer & 2 coats exterior latex	↓	325	.025	↓	.10	.94		1.04	
0370	Molding, exterior, up to 14" wide									
0380	Brushwork, primer	1 Pord	640	.013	L.F.	.07	.48		.55	
0390	Finish coat, exterior latex		640	.013		.07	.48		.55	
0400	Primer & 1 coat exterior latex		400	.020		.15	.77		.92	
0410	Primer & 2 coats exterior latex		315	.025		.15	.97		1.12	
0420	Stain & fill		1050	.008		.10	.29		.39	
0430	Shellac		1850	.004		.10	.17		.27	
0440	Varnish	↓	1275	.006	↓	.11	.24		.35	

09 91 13.90 Walls, Masonry (CMU), Exterior

0350	WALLS, MASONRY (CMU), EXTERIOR	R099100-10								
0360	Concrete masonry units (CMU), smooth surface									
0370	Brushwork, latex, first coat	1 Pord	640	.013	S.F.	.06	.48		.54	
0380	Second coat		960	.008		.05	.32		.37	
0390	Waterproof sealer, first coat		736	.011		.24	.42		.66	
0400	Second coat		1104	.007		.24	.28		.52	
0410	Roll, latex, paint, first coat		1465	.005		.07	.21		.28	
0420	Second coat		1790	.004		.05	.17		.22	
0430	Waterproof sealer, first coat		1680	.005		.24	.18		.42	
0440	Second coat		2060	.004		.24	.15		.39	
0450	Spray, latex, paint, first coat		1950	.004		.06	.16		.22	
0460	Second coat		2600	.003		.05	.12		.17	
0470	Waterproof sealer, first coat		2245	.004		.24	.14		.38	
0480	Second coat	↓	2990	.003	↓	.24	.10		.34	
0490	Concrete masonry unit (CMU), porous									
0500	Brushwork, latex, first coat	1 Pord	640	.013	S.F.	.12	.48		.60	
0510	Second coat		960	.008		.06	.32		.38	
0520	Waterproof sealer, first coat		736	.011		.24	.42		.66	
0530	Second coat		1104	.007		.24	.28		.52	
0540	Roll latex, first coat		1465	.005		.09	.21		.30	
0550	Second coat		1790	.004		.06	.17		.23	
0560	Waterproof sealer, first coat		1680	.005		.24	.18		.42	
0570	Second coat		2060	.004		.24	.15		.39	
0580	Spray latex, first coat		1950	.004		.07	.16		.23	
0590	Second coat		2600	.003		.05	.12		.17	
0600	Waterproof sealer, first coat	↓	2245	.004	↓	.24	.14		.38	

91 Painting

1 13 - Exterior Painting

13.90 Walls, Masonry (CMU), Exterior	Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
Second coat	1 Pord	2990	.003	S.F.	.24	.10		.34	.42

1 23 - Interior Painting

23.20 Cabinets and Casework

CABINETS AND CASEWORK		R099100-10							
Primer coat, oil base, brushwork	1 Pord	650	.012	S.F.	.06	.47		.53	.77
Point, oil base, brushwork, 1 coat	R099100-20	650	.012		.11	.47		.58	.82
Stain, brushwork, wipe off		650	.012		.08	.47		.55	.79
Shellac, 1 coat, brushwork		650	.012		.08	.47		.55	.79
Varnish, 3 coats, brushwork, sand after 1st coat	▼	325	.025		.29	.94		1.23	1.73
For lotex point, deduct				▼	10%				

23.33 Doors and Windows, Interior Alkyd (Oil Base)

DOORS AND WINDOWS, INTERIOR ALKYD (OIL BASE)		R099100-10							
Flush door & frame, 3' x 7', oil, primer, brushwork	1 Pord	10	.800	Do.	3.08	30.50		33.58	49.50
Point, 1 coat	R099100-20	10	.800		4.11	30.50		34.61	50.50
Stain, brushwork, wipe off		18	.444		1.68	17		18.68	27.50
Shellac, 1 coat, brushwork		25	.320		1.70	12.25		13.95	20
Varnish, 3 coats, brushwork, sand after 1st coat		9	.889		6.05	34		40.05	57.50
Panel door & frame, 3' x 7', oil, primer, brushwork		6	1.333		2.28	51		53.28	79
Point, 1 coat		6	1.333		4.11	51		55.11	81
Stain, brushwork, panel door, 3' x 7', not incl. frame		16	.500		1.68	19.15		20.83	30.50
Shellac, 1 coat, brushwork		22	.364		1.70	13.90		15.60	23
Varnish, 3 coats, brushwork, sand after 1st coat	▼	7.50	1.067	▼	6.05	41		47.05	67.50
Windows, including frame and trim, per side									
Colonial type, 6/6 lites, 2' x 3', oil, primer, brushwork	1 Pord	14	.571	Do.	.36	22		22.36	33
Point, 1 coat		14	.571		.65	22		22.65	33
3' x 5' opening, 6/6 lites, primer coat, brushwork		12	.667		.90	25.50		26.40	39
Point, 1 coat		12	.667		1.62	25.50		27.12	40
4' x 8' opening, 6/6 lites, primer coat, brushwork		8	1		1.92	38.50		40.42	59
Point, 1 coat		8	1		3.46	38.50		41.96	61
Single lite type, 2' x 3', oil base, primer coat, brushwork		33	.242		.36	9.25		9.61	14.25
Point, 1 coat		33	.242		.65	9.25		9.90	14.55
3' x 5' opening, primer coat, brushwork		20	.400		.90	15.30		16.20	24
Point, 1 coat		20	.400		1.62	15.30		16.92	25
4' x 8' opening, primer coat, brushwork		14	.571		1.92	22		23.92	34.50
Point, 1 coat	▼	14	.571	▼	3.46	22		25.46	36.50

1 23.35 Doors and Windows, Interior Latex

DOORS & WINDOWS, INTERIOR LATEX		R099100-10							
Doors, flush, both sides, incl. frame & trim									
Roll & brush, primer	R099100-20	1 Pord	10	.800	Do.	3.94	30.50	34.44	50.50
Finish coat, lotex		10	.800		4.43	30.50		34.93	51
Primer & 1 coat latex		7	1.143		8.35	43.50		51.85	74.50
Primer & 2 coats latex		5	1.600		12.55	61		73.55	105
Spray, both sides, primer		20	.400		4.15	15.30		19.45	27.50
Finish coat, lotex		20	.400		4.64	15.30		19.94	28
Primer & 1 coat latex		11	.727		8.85	28		36.85	51.50
Primer & 2 coats latex	▼	8	1	▼	13.25	38.50		51.75	71.50
Doors, French, both sides, 10-15 lite, incl. frame & trim									
Roll & brush, primer	1 Pord	6	1.333	Do.	1.97	51		52.97	78.50
Finish coat, lotex		6	1.333		2.21	51		53.21	79
Primer & 1 coat latex		3	2.667		4.18	102		106.18	158
Primer & 2 coats latex	▼	2	4	▼	6.25	153		159.25	236
Doors, louvered, both sides, incl. frame & trim									

09 91 Painting

09 91 23 - Interior Painting

09 91 23.35 Doors and Windows, Interior Latex				Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Tot Incl
									Labor	Equipment		
0270	Roll & brush, primer			1 Pord	7	1.143	Eq.	3.94	43.50		47.44	
0280	Finish coat, latex				7	1.143		4.43	43.50		47.93	
0290	Primer & 1 coat, latex				4	2		8.15	76.50		84.65	
0300	Primer & 2 coats, latex				3	2.667		12.80	102		114.80	
0320	Spray, both sides, primer				20	.400		4.15	15.30		19.45	
0330	Finish coat, latex				20	.400		4.64	15.30		19.94	
0340	Primer & 1 coat, latex				11	.727		8.85	28		36.85	
0350	Primer & 2 coats, latex				8	1		13.55	38.50		52.05	
0360	Doors, panel, both sides, incl. frame & trim											
0370	Roll & brush, primer			1 Pord	6	1.333	Eq.	4.15	51		55.15	
0380	Finish coat, latex				6	1.333		4.43	51		55.43	
0390	Primer & 1 coat, latex				3	2.667		8.35	102		110.35	
0400	Primer & 2 coats, latex				2.50	3.200		12.80	122		134.80	
0420	Spray, both sides, primer				10	.800		4.15	30.50		34.65	
0430	Finish coat, latex				10	.800		4.64	30.50		35.14	
0440	Primer & 1 coat, latex				5	1.600		8.85	61		69.85	
0450	Primer & 2 coats, latex				4	2		13.55	76.50		90.05	
0460	Windows, per interior side, based on 15 S.F.											
0470	1 to 6 lite											
0480	Brushwork, primer			1 Pord	13	.615	Eq.	.78	23.50		24.28	
0490	Finish coat, enamel				13	.615		.87	23.50		24.37	
0500	Primer & 1 coat enamel				8	1		1.65	38.50		40.15	
0510	Primer & 2 coats enamel				6	1.333		2.52	51		53.52	
0530	7 to 10 lite											
0540	Brushwork, primer			1 Pord	11	.727	Eq.	.78	28		28.78	
0550	Finish coat, enamel				11	.727		.87	28		28.87	
0560	Primer & 1 coat enamel				7	1.143		1.65	43.50		45.15	
0570	Primer & 2 coats enamel				5	1.600		2.52	61		63.52	
0590	12 lite											
0600	Brushwork, primer			1 Pord	10	.800	Eq.	.78	30.50		31.28	
0610	Finish coat, enamel				10	.800		.87	30.50		31.37	
0620	Primer & 1 coat enamel				6	1.333		1.65	51		52.65	
0630	Primer & 2 coats enamel				5	1.600		2.52	61		63.52	
0650	For oil base paint, add							10%				

09 91 23.39 Doors and Windows, Interior Latex, Zero Voc

DOORS & WINDOWS, INTERIOR LATEX, ZERO VOC												
0100	Doors flush, both sides, incl. frame & trim											
0110	Roll & brush, primer	G		1 Pord	10	.800	Eq.	5.10	30.50		35.60	
0120	Finish coat, latex	G			10	.800		5.80	30.50		36.30	
0130	Primer & 1 coat latex	G			7	1.143		10.90	43.50		54.40	
0140	Primer & 2 coats latex	G			5	1.600		16.35	61		77.35	
0160	Spray, both sides, primer	G			20	.400		5.35	15.30		20.65	
0170	Finish coat, latex	G			20	.400		6.10	15.30		21.40	
0180	Primer & 1 coat latex	G			11	.727		11.50	28		39.50	
0190	Primer & 2 coats latex	G			8	1		17.30	38.50		55.80	
0200	Doors, French, both sides, 10-15 lite, incl. frame & trim											
0210	Roll & brush, primer	G		1 Pord	6	1.333	Eq.	2.55	51		53.55	
0220	Finish coat, latex	G			6	1.333		2.90	51		53.90	
0230	Primer & 1 coat latex	G			3	2.667		5.45	102		107.45	
0240	Primer & 2 coats latex	G			2	4		8.20	153		161.20	
0360	Doors, panel, both sides, incl. frame & trim											
0370	Roll & brush, primer	G		1 Pord	6	1.333	Eq.	5.35	51		56.35	

91 Painting

91 23 - Interior Painting

23.39 Doors and Windows, Interior Latex, Zero Voc	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
						Labor	Equipment		
Finish coat, latex	G	1 Pord	6 1.333	Eq.	5.80	51		56.80	83
Primer & 1 coat, latex	G		3 2.667		10.90	102		112.90	165
Primer & 2 coats, latex	G		2.50 3.200		16.70	122		138.70	201
Spray, both sides, primer	G		10 .800		5.35	30.50		35.85	52
Finish coat, latex	G		10 .800		6.10	30.50		36.60	52.50
Primer & 1 coat, latex	G		5 1.600		11.50	61		72.50	104
Primer & 2 coats, latex	G		4 2		17.70	76.50		94.20	133
Windows, per interior side, based on 15 S.F.									
1 to 6 lite									
Brushwork, primer	G	1 Pord	13 .615	Eq.	1	23.50		24.50	36
Finish coat, enamel	G		13 .615		1.15	23.50		24.65	36.50
Primer & 1 coat enamel	G		8 1		2.15	38.50		40.65	59.50
Primer & 2 coats enamel	G		6 1.333		3.30	51		54.30	80

23.40 Floors, Interior

FLOORS, INTERIOR R099100-10									
Concrete point, latex									
Brushwork									
1st coat		1 Pord	975 .008	S.F.	.16	.31		.47	.64
2nd coat			1150 .007		.10	.27		.37	.51
3rd coat			1300 .006		.08	.24		.32	.44
Roll									
1st coat		1 Pord	2600 .003	S.F.	.21	.12		.33	.41
2nd coat			3250 .002		.13	.09		.22	.28
3rd coat			3900 .002		.09	.08		.17	.22
Spray									
1st coat		1 Pord	2600 .003	S.F.	.18	.12		.30	.38
2nd coat			3250 .002		.10	.09		.19	.25
3rd coat			3900 .002		.08	.08		.16	.21
Acid stain and sealer									
Stain, one coat		1 Pord	650 .012	S.F.	.11	.47		.58	.82
Two coats			570 .014		.22	.54		.76	1.04
Acrylic sealer, one coat			2600 .003		.18	.12		.30	.38
Two coats			1400 .006		.37	.22		.59	.74

23.52 Miscellaneous, Interior

MISCELLANEOUS, INTERIOR R099100-10									
Floors, conc./wood, oil base, primer/sealer coat, brushwork									
Roller		2 Pord	1950 .008	S.F.	.07	.31		.38	.55
Spray			5200 .003		.08	.12		.20	.26
Point 1 coat, brushwork			6000 .003		.08	.10		.18	.23
Roller			1950 .008		.09	.31		.40	.57
Spray			5200 .003		.09	.12		.21	.28
Stain, wood floor, brushwork, 1 coat			6000 .003		.10	.10		.20	.26
Roller			4550 .004		.08	.13		.21	.29
Spray			5200 .003		.08	.12		.20	.27
Varnish, wood floor, brushwork			6000 .003		.08	.10		.18	.24
Roller			4550 .004		.10	.13		.23	.31
Spray			5200 .003		.10	.12		.22	.29
For dust proofing or anti skid, see Section 03 35 29.30			6000 .003		.11	.10		.21	.27
Grilles, per side, oil base, primer coat, brushwork									
Spray		1 Pord	520 .015	S.F.	.12	.59		.71	1.01
Point 2 coats, brushwork			1140 .007		.13	.27		.40	.54
Spray			325 .025		.42	.94		1.36	1.87
			650 .012		.48	.47		.95	1.23

09 91 Painting

09 91 23 - Interior Painting

09 91 23.52 Miscellaneous, Interior		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl.
							Labor	Equipment		
5000	Pipe, 1" - 4" diameter, primer or sealer coat, oil base, brushwork	2 Pord	1250	.013	L.F.	.08	.49		.57	
5100	Spray		2165	.007		.07	.28		.35	
5350	Point 2 coats, brushwork		775	.021		.20	.79		.99	
5400	Spray		1240	.013		.23	.49		.72	
6300	13" - 16" diameter, primer or sealer coat, brushwork		310	.052		.31	1.97		2.28	
6350	Spray		540	.030		.34	1.13		1.47	
6500	Point 2 coats, brushwork		195	.082		.82	3.14		3.96	
6550	Spray	▼	310	.052	▼	.91	1.97		2.88	
7000	Trim, wood, incl. puttying, under 6" wide									
7200	Primer coat, oil base, brushwork	1 Pord	650	.012	L.F.	.03	.47		.50	
7250	Point, 1 coat, brushwork		650	.012		.05	.47		.52	
7450	3 coats		325	.025		.16	.94		1.10	
7500	Over 6" wide, primer coat, brushwork		650	.012		.06	.47		.53	
7550	Point, 1 coat, brushwork		650	.012		.11	.47		.58	
7650	3 coats		325	.025	▼	.31	.94		1.25	
8000	Cornice, simple design, primer coat, oil base, brushwork		650	.012	S.F.	.06	.47		.53	
8250	Point, 1 coat		650	.012		.11	.47		.58	
8350	Ornate design, primer coat		350	.023		.06	.87		.93	
8400	Point, 1 coat		350	.023		.11	.87		.98	
8600	Balustrades, primer coat, oil base, brushwork		520	.015		.06	.59		.65	
8650	Point, 1 coat		520	.015		.11	.59		.70	
8900	Trusses and wood frames, primer coat, oil base, brushwork		800	.010		.06	.38		.44	
8950	Spray		1200	.007		.06	.26		.32	
9220	Point 2 coats, brushwork		500	.016		.21	.61		.82	
9240	Spray		600	.013		.23	.51		.74	
9260	Stain, brushwork, wipe off		600	.013		.08	.51		.59	
9280	Varnish, 3 coats, brushwork	▼	275	.029	▼	.29	1.11		1.40	
9350	For latex point, deduct					10%				

09 91 23.62 Electrostatic Painting

0010	ELECTROSTATIC PAINTING									
0100	In shop									
0200	Flat surfaces (lockers, cosework, elevator doors, etc.)									
0300	One coat	1 Pord	200	.040	S.F.	.46	1.53		1.99	
0400	Two coats	"	120	.067	"	.67	2.55		3.22	
0500	Irregular surfaces (furniture, door frames, etc.)									
0600	One coat	1 Pord	150	.053	S.F.	.46	2.04		2.50	
0700	Two coats	"	100	.080	"	.67	3.06		3.73	
0800	On site									
0900	Flat surfaces (lockers, cosework, elev doors, etc.)									
1000	One coat	1 Pord	150	.053	S.F.	.46	2.04		2.50	
1100	Two coats	"	100	.080	"	.67	3.06		3.73	
1200	Irregular surfaces (furniture, door frames, etc.)									
1300	One coat	1 Pord	115	.070	S.F.	.46	2.66		3.12	
1400	Two coats	"	70	.114	"	.67	4.37		5.04	

09 91 23.72 Walls and Ceilings, Interior

0010	WALLS AND CEILINGS, INTERIOR									
0100	Concrete, drywall or plaster, latex, primer or sealer coat	R099100-10								
0200	Smooth finish, brushwork	R099100-20	1 Pord	1150	.007	S.F.	.06	.27	.33	
0240	Roller			1350	.006		.06	.23	.29	
0280	Spray			2750	.003		.05	.11	.16	
0300	Sand finish, brushwork			975	.008		.06	.31	.37	
0340	Roller		▼	1150	.007	▼	.06	.27	.33	

91 Painting

91 23 - Interior Painting

91 23.72 Walls and Ceilings, Interior	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs			Total	Total Incl O&P
						Labor	Equipment			
Spray	1 Pord	2275	.004	S.F.	.05	.13			.18	.26
Point 2 coats, smooth finish, brushwork		680	.012		.12	.45			.57	.81
Roller		800	.010		.12	.38			.50	.71
Spray		1625	.005		.12	.19			.31	.41
Sond finish, brushwork		605	.013		.12	.51			.63	.90
Roller		1020	.008		.12	.30			.42	.59
Spray		1700	.005		.12	.18			.30	.40
Point 3 coats, smooth finish, brushwork		510	.016		.19	.60			.79	1.10
Roller		650	.012		.19	.47			.66	.90
Spray		1625	.005		.17	.19			.36	.47
Gloze coating, 2 coats, spray, clear		1200	.007		.49	.26			.75	.92
Multicolor	▼	1200	.007	▼	.98	.26			1.24	1.46
Pointing walls, complete, including surface prep, primer & 2 coats finish, on drywall or plaster, with roller	1 Pord	325	.025	S.F.	.19	.94			1.13	1.62
For oil base point, add				▼	10%					
For ceiling installations, add				▼		25%				
Masonry or concrete block, primer/sealer, latex point										
Primer, smooth finish, brushwork	1 Pord	1000	.008	S.F.	.10	.31			.41	.57
Roller		1150	.007		.10	.27			.37	.51
Spray		2400	.003		.09	.13			.22	.29
Sond finish, brushwork		850	.009		.10	.36			.46	.65
Roller		975	.008		.10	.31			.41	.58
Spray		2050	.004		.09	.15			.24	.32
Finish coat, smooth finish, brush		1100	.007		.08	.28			.36	.51
Roller		1300	.006		.08	.24			.32	.44
Spray		2400	.003		.07	.13			.20	.27
Sond finish, brushwork		950	.008		.08	.32			.40	.57
Roller		1090	.007		.08	.28			.36	.51
Spray		2040	.004		.07	.15			.22	.30
Primer plus one finish coat, smooth brush		525	.015		.29	.58			.87	1.19
Roller		615	.013		.18	.50			.68	.94
Spray		1200	.007		.16	.26			.42	.56
Sond finish, brushwork		450	.018		.18	.68			.86	1.22
Roller		515	.016		.18	.59			.77	1.09
Spray		1025	.008		.16	.30			.46	.63
Primer plus 2 finish coats, smooth, brush		355	.023		.27	.86			1.13	1.58
Roller		415	.019		.27	.74			1.01	1.39
Spray		800	.010		.23	.38			.61	.83
Sond finish, brushwork		305	.026		.27	.87			1.14	1.60
Roller		350	.023		.27	.74			1.01	1.39
Spray		675	.012		.23	.45			.68	.94
Gloze coating, 3 coats, spray, clear		900	.009		.70	.34			1.04	1.28
Multicolor		900	.009		1.13	.34			1.47	1.76
Block filler, 1 coat, brushwork		425	.019		.13	.72			.85	1.22
Silicone, water repellent, 2 coats, spray	▼	2000	.004	▼	.30	.15			.45	.56
For oil base point, add					10%					
For work 8' - 15' H, add						10%				
For work over 15' H, add						20%				
For light textured surfaces, add						10%				
Heavy textured, add				▼		25%				

09 91 Painting

09 91 23 - Interior Painting

09 91 23.74 Walls and Ceilings, Interior, Zero VOC Latex		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl. Tax
							Labor	Equipment		
0010	WALLS AND CEILINGS, INTERIOR, ZERO VOC LATEX									
0100	Concrete, dry wall or plaster, latex, primer or sealer coat									
0200	Smooth finish, brushwork	G	1 Pord	1150	.007	S.F.	.07	.27		.34
0240	Roller	G		1350	.006		.06	.23		.29
0280	Spray	G		2750	.003		.05	.11		.16
0300	Sand finish, brushwork	G		975	.008		.06	.31		.37
0340	Roller	G		1150	.007		.07	.27		.34
0380	Spray	G		2275	.004		.05	.13		.18
0800	Paint 2 coats, smooth finish, brushwork	G		680	.012		.17	.45		.62
0840	Roller	G		800	.010		.17	.38		.55
0880	Spray	G		1625	.005		.15	.19		.34
0900	Sand finish, brushwork	G		605	.013		.16	.51		.67
0940	Roller	G		1020	.008		.17	.30		.47
0980	Spray	G		1700	.005		.15	.18		.33
1200	Paint 3 coats, smooth finish, brushwork	G		510	.016		.24	.60		.84
1240	Roller	G		650	.012		.26	.47		.73
1280	Spray	G	▼	1625	.005		.22	.19		.41
1800	For ceiling installations, add	G						25%		
8200	For work 8' - 15' H, add							10%		
8300	For work over 15' H, add							20%		

09 91 23.75 Dry Fall Painting

0010	DRY FALL PAINTING									
0100	Sprayed on walls, gypsum board or plaster									
0220	One coat	R099100-20	1 Pord	2600	.003	S.F.	.05	.12		.17
0250	Two coats			1560	.005		.11	.20		.31
0280	Concrete or textured plaster, one coat			1560	.005		.05	.20		.25
0310	Two coats			1300	.006		.11	.24		.35
0340	Concrete block, one coat			1560	.005		.05	.20		.25
0370	Two coats			1300	.006		.11	.24		.35
0400	Wood, one coat			877	.009		.05	.35		.40
0430	Two coats		▼	650	.012	▼	.11	.47		.58
0440	On ceilings, gypsum board or plaster									
0470	One coat		1 Pord	1560	.005	S.F.	.05	.20		.25
0500	Two coats			1300	.006		.11	.24		.35
0530	Concrete or textured plaster, one coat			1560	.005		.05	.20		.25
0560	Two coats			1300	.006		.11	.24		.35
0570	Structural steel, bar joists or metal deck, one coat			1560	.005		.05	.20		.25
0580	Two coats		▼	1040	.008	▼	.11	.29		.40

09 93 Staining and Transparent Finishing

09 93 23 - Interior Staining and Finishing

09 93 23.10 Varnish

0010	VARNISH									
0012	1 coat + sealer, on wood trim, brush, no sanding included		1 Pord	400	.020	S.F.	.07	.77		.84
0100	Hardwood floors, 2 coats, no sanding included, roller		"	1890	.004	"	.15	.16		.31

96 High-Performance Coatings

96 23 - Graffiti-Resistant Coatings

96 23.10 Graffiti Resistant Treatments

GRAFFITI RESISTANT TREATMENTS, sprayed on walls

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Non-sacrificial, permanent non-stick coating, clear, on metals	1 Pard	2000	.004	S.F.	2.06	.15		2.21	2.50
Concrete		2000	.004		2.35	.15		2.50	2.81
Concrete black		2000	.004		3.03	.15		3.18	3.57
Brick		2000	.004		3.44	.15		3.59	4.01
Stone		2000	.004		3.44	.15		3.59	4.01
Unpainted wood		2000	.004		3.97	.15		4.12	4.60
Semi-permanent cross linking polymer primer, on metals		2000	.004		.40	.15		.55	.67
Concrete		2000	.004		.48	.15		.63	.76
Concrete black		2000	.004		.60	.15		.75	.89
Brick		2000	.004		.48	.15		.63	.76
Stone		2000	.004		.48	.15		.63	.76
Unpainted wood		2000	.004		.67	.15		.82	.96
Top coat, on metals		2000	.004		.43	.15		.58	.70
Concrete		2000	.004		.49	.15		.64	.76
Concrete black		2000	.004		.68	.15		.83	.98
Brick		2000	.004		.57	.15		.72	.85
Stone		2000	.004		.57	.15		.72	.85
Unpainted wood		2000	.004		.68	.15		.83	.98
Sacrificial, water based, on metal		2000	.004		.24	.15		.39	.50
Concrete		2000	.004		.24	.15		.39	.50
Concrete black		2000	.004		.24	.15		.39	.50
Brick		2000	.004		.24	.15		.39	.50
Stone		2000	.004		.24	.15		.39	.50
Unpainted wood		2000	.004		.24	.15		.39	.50
Cleaner for use after treatment									
Towels or wipes, per package of 30				Ea.	.63			.63	.70
Aerosol spray, 24 oz. can				"	18			18	19.80

96 53 - Elastomeric Coatings

96 53.10 Coatings, Elastomeric

COATINGS, ELASTOMERIC

High build, water proof, one coat system									
Concrete, brush	1 Pard	650	.012	S.F.	.27	.47		.74	1
Roll		1650	.005		.27	.19		.46	.58
Spray		2600	.003		.27	.12		.39	.48
Concrete black, brush		600	.013		.32	.51		.83	1.12
Roll		1400	.006		.32	.22		.54	.69
Spray		1900	.004		.32	.16		.48	.60
Stucco, brush		400	.020		.45	.77		1.22	1.63
Roll		1000	.008		.45	.31		.76	.95
Spray		1500	.005		.45	.20		.65	.79

96 56 - Epoxy Coatings

96 56.20 Wall Coatings

WALL COATINGS

Acrylic glazed coatings, minimum	1 Pard	525	.015	S.F.	.30	.58		.88	1.20
Maximum		305	.026		.64	1		1.64	2.20
Epoxy coatings, minimum		525	.015		.39	.58		.97	1.30
Maximum		170	.047		1.18	1.80		2.98	3.99
Exposed aggregate, troweled on, 1/16" to 1/4", minimum		235	.034		.60	1.30		1.90	2.61
Maximum (epoxy or polyacrylate)		130	.062		1.28	2.35		3.63	4.93
1/2" to 5/8" aggregate, minimum		130	.062		1.17	2.35		3.52	4.81
Maximum		80	.100		2.02	3.83		5.85	7.90

09 96 High-Performance Coatings

09 96 56 - Epoxy Coatings

09 96 56.20 Wall Coatings		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Time Ind
							Labor	Equipment		
1500	Exposed aggregate, sprayed on, 1/8" aggregate, minimum	1 Pstd	295	.027	S.F.	.55	1.04		1.59	
1600	Maximum		145	.055		1.02	2.11		3.13	
1800	High build epoxy, 50 mil, minimum		390	.021		.66	.78		1.44	
1900	Maximum		95	.084		1.12	3.22		4.34	
2100	Laminated epoxy with fiberglass, minimum		295	.027		.71	1.04		1.75	
2200	Maximum		145	.055		1.27	2.11		3.38	
2400	Sprayed perlite or vermiculite, 1/16" thick, minimum		2935	.003		.26	.10		.36	
2500	Maximum		640	.013		.72	.48		1.20	
2700	Vinyl plastic wall coating, minimum		735	.011		.32	.42		.74	
2800	Maximum		240	.033		.79	1.27		2.06	
3000	Urethane on smooth surface, 2 coats, minimum		1135	.007		.26	.27		.53	
3100	Maximum		665	.012		.57	.46		1.03	
3600	Ceramic-like glazed coating, cementitious, minimum		440	.018		.46	.70		1.16	
3700	Maximum		345	.023		.78	.89		1.67	
3900	Resin base, minimum		640	.013		.32	.48		.80	
4000	Maximum	▼	330	.024	▼	.52	.93		1.45	

09 97 Special Coatings

09 97 13 - Steel Coatings

09 97 13.23 Exterior Steel Coatings

0010 EXTERIOR STEEL COATINGS		R050516-30								
6100	Cold galvanizing, brush in field	1 Psst	1100	.007	S.F.	.12	.29		.41	
6510	Paints & protective coatings, sprayed in field									
6520	Alkyds, primer	2 Psst	3600	.004	S.F.	.07	.17		.24	
6540	Gloss topcoats		3200	.005		.08	.20		.28	
6560	Silicone alkyd		3200	.005		.12	.20		.32	
6610	Epoxy, primer		3000	.005		.25	.21		.46	
6630	Intermediate or topcoat		2800	.006		.22	.22		.44	
6650	Enamel coat		2800	.006		.28	.22		.50	
6700	Epoxy ester, primer		2800	.006		.49	.22		.71	
6720	Topcoats		2800	.006		.18	.22		.40	
6810	Latex primer		3600	.004		.06	.17		.23	
6830	Topcoats		3200	.005		.06	.20		.26	
6910	Universal primers, one part, phenolic, modified alkyd		2000	.008		.11	.31		.42	
6940	Two part, epoxy spray		2000	.008		.26	.31		.57	
7000	Zinc rich primers, self cure, spray, inorganic		1800	.009		.83	.35		1.18	
7010	Epoxy, spray, organic	▼	1800	.009	▼	.22	.35		.57	
7020	Above one story, spray painting simple structures, add						25%			
7030	Intricate structures, add						50%			

Estimating Tips

General

Items in this division are usually priced per square foot each.

Many items in Division 10 require some type of support item or special anchors that are not usually furnished with the item. The required anchors must be added to the estimate of the appropriate division.

Some items in Division 10, such as lockers, may require assembly before installation. Verify the amount of assembly required. Assembly can often speed installation time.

10 20 00 Interior Specialties

- Support angles and blocking are not included in the installation of toilet compartments, shower/dressing compartments, or cubicles. Appropriate line items from Divisions 5 or 6 may need to be added to support the installations.
- Toilet partitions are priced by the stall. A stall consists of a side wall, pilaster, and door with hardware. Toilet tissue holders and grab bars are extra.
- The required acoustical rating of a folding partition can have a significant impact on costs. Verify the sound transmission coefficient rating of the panel priced to the specification requirements.

- Grab bar installation does not include supplemental blocking or backing to support the required load. When grab bars are installed at an existing facility, provisions must be made to attach the grab bars to solid structure.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

Division 10 - Specialties

10 05 Common Work Results for Specialties

10 05 05 – Selective Specialties Demolition

10 05 05.10 Selective Demolition, Specialties		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl.
SELECTIVE DEMOLITION, SPECIALTIES							Labor	Equipment		
0010	Boards and panels, wall mounted	2 Clab	15	1.067	Eo.		37.50		37.50	5
1200	Cases, for directory and/or bulletin boards, including doors		24	.667			23.50		23.50	10
1850	Shower partitions, cabinet or stall, including base and door	▼	8	2			70		70	70
1855	Shower receptor, terrazzo or concrete	1 Clab	14	.571	▼		20		20	
1900	Curtain track or rod, hospital type, ceiling mounted or suspended	"	220	.036	L.F.		1.28		1.28	
1910	Toilet cubicles, remove	2 Clab	8	2	Eo.		70		70	10
1930	Urinal screen, remove	1 Clab	12	.667	"		23.50		23.50	10
2650	Wall guard, misc. wall or corner protection	"	320	.025	L.F.		.88		.88	
2750	Access floor, metal panel system, including pedestals, covering	2 Clab	850	.019	S.F.		.66		.66	
3050	Fireplace, prefab, freestanding or wall hung, including hood and screen	1 Clab	2	4	Eo.		140		140	70
3054	Chimney top, simulated brick, 4' high	"	15	.533			18.70		18.70	7
3200	Stove, woodburning, cast iron	2 Clab	2	8			281		281	43
3440	Weatherstone, residential	1 Clab	12	.667			23.50		23.50	10
3500	Fogpole, groundset, to 70' high, excluding base/foundation	K-1	1	16			630	264	894	1,25
3555	To 30' high	"	2.50	6.400			251	106	357	50
4300	Letter, signs or plaques, exterior on wall	1 Clab	20	.400			14.05		14.05	1
4310	Signs, street, reflective aluminum, including post and bracket		60	.133			4.68		4.68	
4320	Door signs interior on door 6" x 6", selective demolition	▼	20	.400			14.05		14.05	
4550	Turnstiles, manual or electric	2 Clab	2	8	▼		281		281	43
5050	Lockers	1 Clab	15	.533	Opng.		18.70		18.70	
5250	Cabinets, recessed	Q-12	12	1.333	Eo.		65		65	
5260	Mail boxes, Horiz., Key Lock, front loading, Remove	1 Carp	34	.235	"		10.40		10.40	
5350	Awning, fabric, including frame	2 Clab	100	.160	S.F.		5.60		5.60	
6050	Partition, woven wire		1400	.011			.40		.40	
6100	Folding gate, security, door or window		500	.032			1.12		1.12	
6580	Acoustic air wall		650	.025	▼		.86		.86	
7550	Telephone enclosure, exterior, post mounted		3	5.333	Eo.		187		187	2
8850	Sole, platform, excludes foundation or pit	▼	.25	64	"		2,250		2,250	3.4

10 11 Visual Display Units

10 11 13 – Chalkboards

10 11 13.13 Fixed Chalkboards

0010	FIXED CHALKBOARDS Porcelain enamel steel									
3900	Wall hung									
4000	Aluminum frame and chalktrough									
4200	3' x 4'	2 Corp	16	1	Eo.	240	44		284	
4300	3' x 5'		15	1.067		299	47		346	
4500	4' x 8'		14	1.143		410	50.50		460.50	
4600	4' x 12'	▼	13	1.231	▼	575	54.50		629.50	
4700	Wood frame and chalktrough									
4800	3' x 4'	2 Corp	16	1	Eo.	217	44		261	
5000	3' x 5'		15	1.067		267	47		314	
5100	4' x 5'		14	1.143		275	50.50		325.50	
5300	4' x 8'	▼	13	1.231	▼	355	54.50		409.50	
5400	Liquid chalk, white porcelain enamel, wall hung									
5420	Deluxe units, aluminum trim and chalktrough									
5450	4' x 4'	2 Carp	16	1	Eo.	250	44		294	
5500	4' x 8'		14	1.143		370	50.50		420.50	
5550	4' x 12'	▼	12	1.333	▼	530	59		589	
5700	Wood trim and chalktrough									

11 Visual Display Units

1 13 - Chalkboards

13.13 Fixed Chalkboards	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
4' x 4'	2 Carp	16	1	Ea.	715	44		759	855
4' x 6'		15	1.067		470	47		517	595
4' x 8'	▼	14	1.143		970	50.50		1,020.50	1,150
Liquid chalk, felt tip markers					1.95			1.95	2.15
Erasers					1.77			1.77	1.95
Board cleaner, 8 oz. bottle				▼	6			6	6.60

13.23 Modular-Support-Mounted Chalkboards

MODULAR-SUPPORT-MOUNTED CHALKBOARDS

Sliding chalkboards									
Vertical, one sliding board with back panel, wall mounted									
8' x 4'	2 Carp	8	2	Ea.	2,225	88		2,313	2,575
8' x 8'	▼	7.50	2.133	▼	3,050	94		3,144	3,500
8' x 12'	▼	7	2.286	▼	4,175	101		4,276	4,750
Two sliding boards, with back panel									
8' x 4'	2 Carp	8	2	Ea.	3,500	88		3,588	3,975
8' x 8'	▼	7.50	2.133	▼	5,025	94		5,119	5,700
8' x 12'	▼	7	2.286	▼	8,400	101		8,501	9,400
Horizontal, two track									
4' x 8', 2 sliding panels	2 Carp	8	2	Ea.	1,950	88		2,038	2,275
4' x 12', 2 sliding panels	▼	7.50	2.133	▼	2,550	94		2,644	2,950
4' x 16', 4 sliding panels	▼	7	2.286	▼	3,425	101		3,526	3,925
Four track, four sliding panels									
4' x 8'	2 Carp	8	2	Ea.	3,150	88		3,238	3,575
4' x 12'	▼	7.50	2.133	▼	4,100	94		4,194	4,675
4' x 16'	▼	7	2.286	▼	5,350	101		5,451	6,025
Vertical, motor operated									
One sliding panel with back panel									
10' x 4'	2 Carp	4	4	Ea.	5,650	176		5,826	6,500
10' x 10'	▼	3.75	4.267	▼	6,825	188		7,013	7,800
10' x 16'	▼	3.50	4.571	▼	8,050	202		8,252	9,150
Two sliding panels with back panel									
10' x 4'	2 Carp	4	4	Ea.	10,000	176		10,176	11,300
10' x 10'	▼	3.75	4.267	▼	11,700	188		11,888	13,100
10' x 16'	▼	3.50	4.571	▼	13,300	202		13,502	15,000
Three sliding panels with back panel									
10' x 4'	2 Carp	4	4	Ea.	14,000	176		14,176	15,700
10' x 10'	▼	3.75	4.267	▼	15,300	188		15,488	17,200
10' x 16'	▼	3.50	4.571	▼	18,500	202		18,702	20,700
For projection screen, glass beaded, add				S.F.	8.10			8.10	8.90
For remote control, 1 panel control, add				Ea.	380			380	420
2 panel control, add				"	655			655	725
For units without back panels, deduct				S.F.	5.10			5.10	5.65
For liquid chalk porcelain panels, add				"	5.50			5.50	6.05
Swing leaf, any comb. of chalkboard & cork, aluminum frame									
Floor style, 6 panels									
30" x 40" panels				Ea.	1,575			1,575	1,750
48" x 40" panels				"	2,650			2,650	2,925
Wall mounted, 6 panels									
30" x 40" panels	2 Carp	16	1	Ea.	1,500	44		1,544	1,725
48" x 40" panels	"	16	1	"	1,850	44		1,894	2,100
Extra panels for swing leaf units									
30" x 40" panels				Ea.	299			299	330

10 11 Visual Display Units

10 11 13 – Chalkboards

10 11 13.23 Modular-Support-Mounted Chalkboards		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Inc.
							Labor	Equipment		
3750	48" x 40" panels				Ea.	370			370	
10 11 13.43 Portable Chalkboards										
0010	PORTABLE CHALKBOARDS									
0100	Freestanding, reversible									
0120	Economy, wood frame, 4' x 6'									
0140	Chalkboard both sides				Ea.	595			595	
0160	Chalkboard one side, cork other side				"	565			565	
0200	Standard, lightweight satin finished aluminum, 4' x 6'									
0220	Chalkboard both sides				Ea.	675			675	
0240	Chalkboard one side, cork other side				"	695			695	
0300	Deluxe, heavy duty extruded aluminum, 4' x 6'									
0320	Chalkboard both sides				Ea.	1,025			1,025	
0340	Chalkboard one side, cork other side				"	930			930	

10 11 16 – Markerboards

10 11 16.53 Electronic Markerboards										
0010	ELECTRONIC MARKERBOARDS									
0100	Wall hung or free standing, 3' x 4' to 4' x 6'	2 Carp	8	2	S.F.	83.50	88		171.50	
0150	5' x 6' to 4' x 8'		8	2	"	64.50	88		152.50	
0500	Interactive projection module for existing whiteboards		8	2	Ea.	2,300	88		2,388	

10 11 23 – Tackboards

10 11 23.10 Fixed Tackboards										
0010	FIXED TACKBOARDS									
0020	Cork sheets, unbacked, no frame, 1/4" thick	2 Carp	290	.055	S.F.	2.07	2.43		4.50	
0100	1/2" thick		290	.055		4.16	2.43		6.59	
0300	Fabric-face, no frame, on 7/32" cork underlay		290	.055		6.30	2.43		8.73	
0400	On 1/4" cork on 1/4" hardboard		290	.055		8.35	2.43		10.78	
0600	With edges wrapped		290	.055		9.45	2.43		11.88	
0700	On 7/16" fire retardant core		290	.055		6.15	2.43		8.58	
0900	With edges wrapped		290	.055		7.80	2.43		10.23	
1000	Designer fabric only, cut to size					2.70			2.70	
1200	1/4" vinyl cork, on 1/4" hardboard, no frame	2 Carp	290	.055		7.70	2.43		10.13	
1300	On 1/4" coreboard		290	.055		4.18	2.43		6.61	
2000	For map and display rail, economy, add		385	.042	L.F.	3.06	1.83		4.89	
2100	Deluxe, add		350	.046	"	4.70	2.02		6.72	
2120	Prefabricated, 1/4" cork, 3' x 5' with aluminum frame		16	1	Ea.	128	44		172	
2140	Wood frame		16	1		153	44		197	
2160	4' x 4' with aluminum frame		16	1		119	44		163	
2180	Wood frame		16	1		175	44		219	
2200	4' x 8' with aluminum frame		14	1.143		261	50.50		311.50	
2210	With wood frame		14	1.143		195	50.50		245.50	
2220	4' x 12' with aluminum frame		12	1.333		385	59		444	
2230	Bulletin board case, single glass door, with lock									
2240	36" x 24", economy	2 Carp	12	1.333	Ea.	315	59		374	
2250	Deluxe		12	1.333		565	59		624	
2260	42" x 30", economy		12	1.333		360	59		419	
2270	Deluxe		12	1.333		510	59		569	
2300	Glass enclosed cabinets, alum., cork panel, hinged doors									
2400	3' x 3', 1 door	2 Carp	12	1.333	Ea.	605	59		664	
2500	4' x 4', 2 door		11	1.455		1,000	64		1,064	
2600	4' x 7', 3 door		10	1.600		1,775	70.50		1,845.50	
2800	4' x 10', 4 door		8	2		2,350	88		2,438	

11 Visual Display Units

1 23 - Tackboards

23.10 Fixed Tackboards	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
For lights, add per door opening	1 Elec	13	.615	Ea.	161	31.50		192.50	226
Horizontal sliding units, 4 doors, 4' x 8', 8' x 4'	2 Corp	9	1.778		1,950	78.50		2,028.50	2,275
4' x 12'		7	2.286		2,550	101		2,651	2,950
8 doors, 4' x 16'		5	3.200		3,450	141		3,591	4,000
4' x 24'		4	4		4,650	176		4,826	5,375

23.20 Control Boards

CONTROL BOARDS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Magnetic, porcelain finish, 18" x 24", framed	2 Corp	8	2	Ea.	199	88		287	355
24" x 36"		7.50	2.133		295	94		389	470
36" x 48"		7	2.286		390	101		491	585
48" x 72"		6	2.667		860	118		978	1,125
48" x 96"		5	3.200		1,075	141		1,216	1,400

13 Directories

13 10 - Building Directories

10.10 Directory Boards

DIRECTORY BOARDS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Plastic, gloss covered, 30" x 20"	2 Corp	3	5.333	Ea.	260	235		495	645
36" x 48"		2	8		845	355		1,200	1,475
Grooved cork, 30" x 20"		3	5.333		405	235		640	805
36" x 48"		2	8		555	355		910	1,150
Black felt, 30" x 20"		3	5.333		229	235		464	610
36" x 48"		2	8		420	355		775	1,000
Outdoor, weatherproof, black plastic, 36" x 24"		2	8		760	355		1,115	1,375
36" x 36"		1.50	10.667		880	470		1,350	1,700
Indoor, economy, open face, 18" x 24"		7	2.286		149	101		250	320
24" x 36"		7	2.286		154	101		255	325
36" x 24"		6	2.667		154	118		272	350
36" x 48"		6	2.667		251	118		369	455
Building directory, alum., black felt panels, 1 door, 24" x 18"		4	4		315	176		491	615
36" x 24"		3.50	4.571		375	202		577	725
48" x 32"		3	5.333		610	235		845	1,025
2 door, 36" x 48"		2.50	6.400		655	282		937	1,150
36" x 60"		2	8		860	355		1,215	1,500
48" x 60"		1	16		970	705		1,675	2,150
For bronze enamel finish, add					15%				
For bronze onodized finish, add					25%				
For illuminated directory, single door unit, add					135			135	148
For 6" header panel, 6 letters per foot, add				L.F.	21.50			21.50	23.50
Building directory, electronic display, alum. frame, wall mounted	2 Corp	32	.500	S.F.	785	22		807	895
Free standing	"	60	.267	"	1,025	11.75		1,036.75	1,175

10 14 Signage

10 14 19 – Dimensional Letter Signage

10 14 19.10 Exterior Signs		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	
							Labor	Equipment		
0010	EXTERIOR SIGNS									
0020	Letters, 2" high, 3/8" deep, cast bronze	1 Carp	24	.333	Ea.	26	14.70		40.70	
0140	1/2" deep, cast aluminum		18	.444		26	19.60		45.60	
0160	Cast bronze		32	.250		33.50	11.05		44.55	
0300	6" high, 5/8" deep, cast aluminum		24	.333		28.50	14.70		43.20	
0400	Cast bronze		24	.333		62	14.70		76.70	
0600	8" high, 3/4" deep, cast aluminum		14	.571		37.50	25		62.50	
0700	Cast bronze		20	.400		90	17.65		107.65	
0900	10" high, 1" deep, cast aluminum		18	.444		61	19.60		80.60	
1000	Brnze		18	.444		116	19.60		135.60	
1200	12" high, 1-1/4" deep, cast aluminum		12	.667		61.50	29.50		91	
1500	Cast bronze		18	.444		133	19.60		152.60	
1600	14" high, 2-5/16" deep, cast aluminum		12	.667		77	29.50		106.50	
1800	Fabricated stainless steel, 6" high, 2" deep		20	.400		41.50	17.65		59.15	
1900	12" high, 3" deep		18	.444		67	19.60		86.60	
2100	18" high, 3" deep		12	.667		109	29.50		138.50	
2200	24" high, 4" deep		10	.800		212	35.50		247.50	
2700	Acrylic, an high density foam, 12" high, 2" deep		20	.400		17.60	17.65		35.25	
2800	18" high, 2" deep		18	.444		32.50	19.60		52.10	
3900	Plaques, custom, 20" x 30", for up to 450 letters, cast aluminum	2 Carp	4	4		1,125	176		1,301	1.5
4000	Cast bronze		4	4		1,675	176		1,851	2.1
4200	30" x 36", up to 900 letters cast aluminum		3	5.333		2,000	235		2,235	2.5
4300	Cast bronze		3	5.333		3,250	235		3,485	3.9
4500	36" x 48", for up to 1300 letters, cast bronze		2	8		4,425	355		4,780	5.4
4800	Signs, reflective alum. directional signs, dbl. face, 2-way, w/bracket		30	.533		144	23.50		167.50	
4900	4-way		30	.533		231	23.50		254.50	
5100	Exit signs, 24 ga. alum., 14" x 12" surface mounted	1 Carp	30	.267		43	11.75		54.75	
5200	10" x 7"		20	.400		29.50	17.65		47.15	
5400	Bracket mounted, double face, 12" x 10"		30	.267		78	11.75		89.75	
5500	Sticky back, stack decals, 14" x 10"	1 Clab	50	.160		25.50	5.60		31.10	
6000	Interior elec., wall mount, fiberglass panels, 2 lamps, 6"	1 Elec	8	1		132	51.50		183.50	
6100	8"	"	8	1		103	51.50		154.50	
6400	Replacement sign faces, 6" or 8"	1 Clab	50	.160		62.50	5.60		68.10	

10 14 23 – Panel Signage

10 14 23.13 Engraved Panel Signage

0010	ENGRAVED PANEL SIGNAGE, interior									
1010	Flexible door sign, adhesive back, w/Braille, 5/8" letters, 4" x 4"	1 Clab	32	.250	Ea.	35	8.80		43.80	
1050	6" x 6"		32	.250		52.50	8.80		61.30	
1100	8" x 2"		32	.250		36	8.80		44.80	
1150	8" x 4"		32	.250		45.50	8.80		54.30	
1200	8" x 8"		32	.250		71.50	8.80		80.30	
1250	12" x 2"		32	.250		35	8.80		43.80	
1300	12" x 6"		32	.250		50	8.80		58.80	
1350	12" x 12"		32	.250		143	8.80		151.80	
1500	Graphic symbols, 2" x 2"		32	.250		12	8.80		20.80	
1550	6" x 6"		32	.250		31	8.80		39.80	
1600	8" x 8"		32	.250		31	8.80		39.80	
2010	Corridor, stack acrylic, 2-sided, with mounting bracket, 2" x 8"	1 Carp	24	.333		26	14.70		40.70	
2020	2" x 10"		24	.333		35.50	14.70		50.20	
2050	3" x 8"		24	.333		31.50	14.70		46.20	
2060	3" x 10"		24	.333		44.50	14.70		59.20	
2070	3" x 12"		24	.333		65	14.70		79.70	

14 Signage

14.23 - Panel Signage

14.23.13 Engraved Panel Signage	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
4" x 8"	1 Corp	24	.333	Eo.	35.50	14.70		50.20	61.50
4" x 10"		24	.333		42	14.70		56.70	68.50
4" x 12"		24	.333		56.50	14.70		71.20	84.50

14.53 - Traffic Signage

14.53.20 Traffic Signs

TRAFFIC SIGNS									
Stock, 24" x 24", no posts, .080" alum. reflectorized	B-80	70	.457	Eo.	81.50	17.30	9.55	108.35	127
High intensity		70	.457		81.50	17.30	9.55	108.35	127
30" x 30", reflectorized		70	.457		248	17.30	9.55	274.85	310
High intensity		70	.457		275	17.30	9.55	301.85	340
Guide and directional signs, 12" x 18", reflectorized		70	.457		34.50	17.30	9.55	61.35	75
High intensity		70	.457		57	17.30	9.55	83.85	100
18" x 24", stock signs, reflectorized		70	.457		45.50	17.30	9.55	72.35	87
High intensity		70	.457		50.50	17.30	9.55	77.35	92.50
24" x 24", stock signs, reflectorized		70	.457		55	17.30	9.55	81.85	97.50
High intensity		70	.457		60	17.30	9.55	86.85	103
Add to above for steel posts, galvanized, 10'-0" upright, bolted		200	.160		42	6.05	3.34	51.39	59.50
12'-0" upright, bolted		140	.229		39	8.65	4.77	52.42	61.50
Highway road signs, aluminum, over 20 S. F., reflectorized		350	.091	S.F.	29	3.46	1.91	34.37	39
High intensity		350	.091		29	3.46	1.91	34.37	39
Highway, suspended over road, 80 S.F. min., reflectorized		165	.194		29	7.35	4.05	40.40	47
High intensity		165	.194		29	7.35	4.05	40.40	47

17 Telephone Specialties

17.16 - Telephone Enclosures

17.16.10 Commercial Telephone Enclosures

COMMERCIAL TELEPHONE ENCLOSURES									
Shelf type, wall hung, minimum	2 Corp	5	3.200	Eo.	995	141		1,136	1,325
Maximum	"	5	3.200	"	3,225	141		3,366	3,775

21 Compartments and Cubicles

21.13 - Toilet Compartments

21.13.13 Metal Toilet Compartments

METAL TOILET COMPARTMENTS									
Cubicles, ceiling hung									
Powder coated steel	2 Corp	4	4	Eo.	500	176		676	820
Stainless steel	"	4	4		945	176		1,121	1,325
For handicap units, incl. 52" grab bars, odd	♿			▼	420			420	460
Floor and ceiling anchored									
Powder coated steel	2 Corp	5	3.200	Eo.	615	141		756	895
Stainless steel	"	5	3.200		1,075	141		1,216	1,425
For handicap units, incl. 52" grab bars, odd	♿			▼	300			300	330
Floor anchored									
Powder coated steel	2 Corp	7	2.286	Eo.	590	101		691	805
Stainless steel	"	7	2.286		1,375	101		1,476	1,675
For handicap units, incl. 52" grab bars, odd	♿			▼	299			299	330
For juvenile units, deduct					41.50			41.50	45.50
Floor anchored, headrail braced									
Powder coated steel	2 Corp	6	2.667	Eo.	385	118		503	600

10 21 Compartments and Cubicles

10 21 13 – Toilet Compartments

10 21 13.13 Metal Toilet Compartments

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Unit
2804	Stainless steel	2 Corp	4.60	3.478	Eq.	1,025	153		1,178	
2900	For handicap units, incl. 52" grab bars, odd					350			350	
3000	Wall hung partitions, powder coated steel	2 Corp	7	2.286		625	101		726	
3300	Stainless steel	"	7	2.286		1,650	101		1,751	
3400	For handicap units, incl. 52" grab bars, odd				▼	350			350	
4000	Screens, entrance, floor mounted, 58" high, 48" wide									
4200	Powder coated steel	2 Corp	15	1.067	Eq.	238	47		285	
4500	Stainless steel	"	15	1.067	"	895	47		942	
4650	Urinal screen, 18" wide									
4704	Powder coated steel	2 Corp	6.15	2.602	Eq.	220	115		335	
5004	Stainless steel	"	6.15	2.602	"	580	115		695	
5100	Floor mounted, head rail broced									
5300	Powder coated steel	2 Corp	8	2	Eq.	228	88		316	
5600	Stainless steel	"	8	2	"	595	88		683	
5750	Piloster, flush									
5800	Powder coated steel	2 Corp	10	1.600	Eq.	276	70.50		346.50	
6100	Stainless steel		10	1.600		670	70.50		740.50	
6300	Post broced, powder coated steel		10	1.600		153	70.50		223.50	
6600	Stainless steel	▼	10	1.600	▼	450	70.50		520.50	
6700	Wall hung, bracket supported									
6800	Powder coated steel	2 Corp	10	1.600	Eq.	153	70.50		223.50	
7100	Stainless steel		10	1.600		219	70.50		289.50	
7400	Flange supported, powder coated steel		10	1.600		106	70.50		176.50	
7700	Stainless steel		10	1.600		310	70.50		380.50	
7800	Wedge type, powder coated steel		10	1.600		134	70.50		204.50	
8100	Stainless steel	▼	10	1.600	▼	565	70.50		635.50	

10 21 13.14 Metal Toilet Compartment Components

0010	METAL TOILET COMPARTMENT COMPONENTS									
0100	Pilosters									
0110	Overhead broced, powder coated steel, 7" wide x 82" high	2 Corp	22.20	.721	Eq.	72.50	32		104.50	
0120	Stainless steel		22.20	.721		121	32		153	
0130	Floor broced, powder coated steel, 7" wide x 70" high		23.30	.687		122	30.50		152.50	
0140	Stainless steel		23.30	.687		236	30.50		266.50	
0150	Ceiling hung, powder coated steel, 7" wide x 83" high		13.30	1.203		129	53		182	
0160	Stainless steel		13.30	1.203		264	53		317	
0170	Wall hung, powder coated steel, 3" wide x 58" high		18.90	.847		129	37.50		166.50	
0180	Stainless steel	▼	18.90	.847	▼	183	37.50		220.50	
0200	Panels									
0210	Powder coated steel, 31" wide x 58" high	2 Corp	18.90	.847	Eq.	128	37.50		165.50	
0220	Stainless steel		18.90	.847		350	37.50		387.50	
0230	Powder coated steel, 53" wide x 58" high		18.90	.847		158	37.50		195.50	
0240	Stainless steel		18.90	.847		450	37.50		487.50	
0250	Powder coated steel, 63" wide x 58" high		18.90	.847		186	37.50		223.50	
0260	Stainless steel	▼	18.90	.847	▼	495	37.50		532.50	
0300	Doors									
0310	Powder coated steel, 24" wide x 58" high	2 Corp	14.10	1.135	Eq.	133	50		183	
0320	Stainless steel		14.10	1.135		275	50		325	
0330	Powder coated steel, 26" wide x 58" high		14.10	1.135		136	50		186	
0340	Stainless steel		14.10	1.135		284	50		334	
0350	Powder coated steel, 28" wide x 58" high		14.10	1.135		156	50		206	
0360	Stainless steel		14.10	1.135		315	50		365	
0370	Powder coated steel, 36" wide x 58" high	▼	14.10	1.135	▼	167	50		217	

21 Compartments and Cubicles

13.13 – Toilet Compartments

13.14 Metal Toilet Compartment Components	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Stainless steel	2 Carp	14.10	1.135	Ea.	355	50		405	465
Headrails									
Far powder coated steel, 62" long	2 Carp	65	.246	Ea.	21	10.85		31.85	40
Stainless steel		65	.246		21	10.85		31.85	40
Far powder coated steel, 84" long		50	.320		32	14.10		46.10	56.50
Stainless steel		50	.320		32	14.10		46.10	56.50
Far powder coated steel, 120" long		30	.533		42	23.50		65.50	82
Stainless steel		30	.533		42	23.50		65.50	82

13.16 Plastic-Laminate-Clad Toilet Compartments

PLASTIC-LAMINATE-CLAD TOILET COMPARTMENTS

Cubicles, ceiling hung									
Plastic laminate on particle board	2 Carp	4	4	Ea.	540	176		716	865
Far handicap units, incl. 52" grab bars, add				"	420			420	460
Floor and ceiling anchored									
Plastic laminate on particle board	2 Carp	5	3.200	Ea.	790	141		931	1,075
Far handicap units, incl. 52" grab bars, add				"	300			300	330
Floor mounted									
Plastic laminate on particle board	2 Carp	7	2.286	Ea.	495	101		596	700
Floor mounted, headrail braced									
Plastic laminate on particle board	2 Carp	6	2.667	Ea.	750	118		868	1,000
Far handicap units, incl. 52" grab bars, add					350			350	385
Entrance screen, floor mtd., plas. lam., 58" high, 48" wide	2 Carp	15	1.067		610	47		657	745
Urinal screen, 18" wide, ceiling braced, plastic laminate		8	2		174	88		262	325
Floor mounted, headrail braced		8	2		180	88		268	335
Pilaster, flush, plastic laminate		10	1.600		505	70.50		575.50	670
Post braced, plastic laminate		10	1.600		295	70.50		365.50	435
Wall hung, bracket supported									
Plastic laminate on particle board	2 Carp	10	1.600	Ea.	90.50	70.50		161	209
Flange supported									
Plastic laminate on particle board	2 Carp	10	1.600	Ea.	229	70.50		299.50	360

13.17 Plastic-Laminate Clad Toilet Compartment Components

PLASTIC-LAMINATE CLAD TOILET COMPARTMENT COMPONENTS

Pilasters									
Overhead braced, 7" wide x 82" high	2 Carp	22.20	.721	Ea.	92	32		124	150
Floor anchored, 7" wide x 70" high		23.30	.687		92.50	30.50		123	149
Ceiling hung, 7" wide x 83" high		13.30	1.203		98	53		151	190
Wall hung, 3" wide x 58" high		18.90	.847		90.50	37.50		128	157
Panels									
31" wide x 58" high	2 Carp	18.90	.847	Ea.	138	37.50		175.50	210
51" wide x 58" high		18.90	.847		190	37.50		227.50	267
63" wide x 58" high		18.90	.847		221	37.50		258.50	300
Doors									
24" wide x 58" high	2 Carp	14.10	1.135	Ea.	135	50		185	226
26" wide x 58" high		14.10	1.135		140	50		190	231
28" wide x 58" high		14.10	1.135		145	50		195	237
36" wide x 58" high		14.10	1.135		174	50		224	268
Headrails									
62" long	2 Carp	65	.246	Ea.	22.50	10.85		33.35	41
84" long		60	.267		32	11.75		43.75	53
120" long		30	.533		42	23.50		65.50	82

10 21 Compartments and Cubicles

10 21 13 - Toilet Compartments

10 21 13.19 Plastic Toilet Compartments				Daily Labor- Crew Output Hours Unit	Material	2012 Bare Costs Labor Equipment	Total	Unit
0010	PLASTIC TOILET COMPARTMENTS							
0110	Cubicles, ceiling hung							
0250	Phenolic	2 Corp	4	4	Eo.	850	176	1,026
0600	For handicap units, incl. 52" grab bars, add				"	420		420
0900	Floor and ceiling anchored							
1050	Phenolic	2 Corp	5	3.200	Eo.	860	141	1,001
1400	For handicap units, incl. 52" grab bars, add				"	300		300
1610	Floor mounted							
1750	Phenolic	2 Corp	7	2.286	Eo.	750	101	851
2100	For handicap units, incl. 52" grab bars, add					299		299
2200	For juvenile units, deduct					41.50		41.50
2450	Floor mounted, headrail broced							
2550	Phenolic	2 Corp	6	2.667	Eo.	750	118	868

10 21 13.20 Plastic Toilet Compartment Components

0010	PLASTIC TOILET COMPARTMENT COMPONENTS							
0100	Pilasters							
0110	Overhead broced, polymer plastic, 7" wide x 82" high	2 Corp	22.20	.721	Eo.	103	32	135
0120	Phenolic		22.20	.721		146	32	178
0130	Floor broced, polymer plastic, 7" wide x 70" high		23.30	.687		169	30.50	199.50
0140	Phenolic		23.30	.687		138	30.50	168.50
0150	Ceiling hung, polymer plastic, 7" wide x 83" high		13.30	1.203		166	53	219
0160	Phenolic		13.30	1.203		156	53	209
0180	Wall hung, phenolic, 3" wide x 58" high		18.90	.847		93	37.50	130.50
0200	Panels							
0210	Polymer plastic, 31" high x 55" high	2 Corp	18.90	.847	Eo.	295	37.50	332.50
0220	Phenolic, 31" wide x 58" high		18.90	.847		249	37.50	286.50
0230	Polymer plastic, 51" wide x 55" high		18.90	.847		395	37.50	432.50
0240	Phenolic, 51" wide x 58" high		18.90	.847		380	37.50	417.50
0250	Polymer plastic, 63" wide x 55" high		18.90	.847		540	37.50	577.50
0260	Phenolic, 63" wide x 58" high		18.90	.847		400	37.50	437.50
0300	Doors							
0310	Polymer plastic, 24" wide x 55" high	2 Corp	14.10	1.135	Eo.	202	50	252
0320	Phenolic, 24" wide x 58" high		14.10	1.135		283	50	333
0330	Polymer plastic, 26" high x 55" high		14.10	1.135		215	50	265
0340	Phenolic, 26" wide x 58" high		14.10	1.135		300	50	350
0350	Polymer plastic, 28" wide x 55" high		14.10	1.135		240	50	290
0360	Phenolic, 28" wide x 58" high		14.10	1.135		315	50	365
0370	Polymer plastic, 36" wide x 55" high		14.10	1.135		280	50	330
0380	Phenolic, 36" wide x 58" high		14.10	1.135		395	50	445
0400	Headrails							
0410	For polymer plastic, 62" long	2 Corp	65	.246	Eo.	22.50	10.85	33.35
0420	Phenolic		65	.246		22.50	10.85	33.35
0430	For polymer plastic, 84" long		50	.320		32	14.10	46.10
0440	Phenolic		50	.320		32	14.10	46.10
0450	For polymer plastic, 120" long		30	.533		42	23.50	65.50
0460	Phenolic		30	.533		42	23.50	65.50

10 21 13.40 Stone Toilet Compartments

0010	STONE TOILET COMPARTMENTS							
0100	Cubicles, ceiling hung, marble							
0600	For handicap units, incl. 52" grab bars, add					420		420
0800	Floor & ceiling anchored, marble							
1400	For handicap units, incl. 52" grab bars, add					300		300

21 Compartments and Cubicles

21 13 - Toilet Compartments

13.40 Stone Toilet Compartments	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Floor mounted, marble	2 Marb	3	5.333	Ea.	1,125	219		1,344	1,575
Floor mounted, headrail braced, marble	"	3	5.333		1,100	219		1,319	1,525
For handicap units, incl. 52" grab bars, add					350			350	385
Entrance screen, floor mounted marble, 58" high, 48" wide	2 Marb	9	1.778		710	73		783	890
Urinal screen, 18" wide, ceiling braced, marble	D-1	6	2.667	▼	725	106		831	960
Floor mounted, head rail braced									
Marble	D-1	6	2.667	Ea.	615	106		721	840
Pilaster, flush, marble	▼	9	1.778	▼	810	71		881	995
Post braced, marble	▼	9	1.778	▼	800	71		871	985

21 16 - Shower and Dressing Compartments

16.10 Partitions, Shower

PARTITIONS, SHOWER floor mounted, no plumbing									
Cabinet, one piece, fiberglass, 32" x 32"	2 Carp	5	3.200	Ea.	505	141		646	770
36" x 36"	▼	5	3.200		570	141		711	840
36" x 48"	▼	5	3.200		1,450	141		1,591	1,825
Acrylic, 32" x 32"	▼	5	3.200		325	141		466	570
36" x 36"	▼	5	3.200		1,025	141		1,166	1,350
36" x 48"	▼	5	3.200		1,475	141		1,616	1,850
Shower door for above, clear plastic, 24" wide	1 Carp	8	1		177	44		221	263
28" wide	▼	8	1		201	44		245	290
Tempered glass, 24" wide	▼	8	1		191	44		235	278
28" wide	▼	8	1		216	44		260	305
Glass stalls, with doors, no receptors, chrome on brass	2 Shee	3	5.333		1,550	278		1,828	2,125
Anodized aluminum	"	4	4		1,075	209		1,284	1,500
Marble shower stall, stock design, with shower door	2 Marb	1.20	13.333		2,325	550		2,875	3,375
With curtain	▼	1.30	12.308		2,050	505		2,555	3,025
Receptors, precast terrazzo, 32" x 32"	▼	14	1.143		297	47		344	395
48" x 34"	▼	9.50	1.684		405	69		474	550
Plastic, simulated terrazzo receptor, 32" x 32"	▼	14	1.143		130	47		177	214
32" x 48"	▼	12	1.333		208	55		263	310
Precast concrete, colors, 32" x 32"	▼	14	1.143		166	47		213	254
48" x 48"	▼	8	2		230	82		312	375
Shower doors, economy plastic, 24" wide	1 Shee	9	.889		134	46.50		180.50	219
Tempered glass door, economy	▼	8	1		252	52		304	355
Folding, tempered glass, aluminum frame	▼	6	1.333		390	69.50		459.50	535
Sliding, tempered glass, 48" opening	▼	6	1.333		540	69.50		609.50	695
Deluxe, tempered glass, chrome on brass frame, minimum	▼	8	1		385	52		437	500
Maximum	▼	1	8		625	415		1,040	1,325
On anodized aluminum frame, minimum	▼	2	4		540	209		749	910
Maximum	▼	1	8	▼	625	415		1,040	1,325
Shower enclosure, tempered glass, anodized alum. frame									
2 panel & door, corner unit, 32" x 32"	1 Shee	2	4	Ea.	1,075	209		1,284	1,500
Neo-angle corner unit, 16" x 24" x 16"	"	2	4		1,150	209		1,359	1,575
Shower surround, 3 wall, polypropylene, 32" x 32"	1 Carp	4	2		415	88		503	590
PVC, 32" x 32"	▼	4	2		355	88		443	530
Fiberglass	▼	4	2		390	88		478	565
2 wall, polypropylene, 32" x 32"	▼	4	2		296	88		384	460
PVC	▼	4	2		370	88		458	540
Fiberglass	▼	4	2		375	88		463	545
Tub doors, tempered glass & frame, minimum	1 Shee	8	1		214	52		266	315
Maximum	▼	6	1.333		500	69.50		569.50	655
Chrome plated, brass frame, minimum	▼	8	1	▼	284	52		336	390

10 21 Compartments and Cubicles

10 21 16 – Shower and Dressing Compartments

10 21 16.10 Partitions, Shower		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
5700	Maximum	1 Shee	6	1.333	Ea.	695	69.50		764.50
5900	Tub/shower enclosure, temp. glass, alum. frame, minimum		2	4		385	209		594
6200	Maximum		1.50	5.333		800	278		1,078
6500	On chrome-plated brass frame, minimum		2	4		530	209		739
6600	Maximum	▼	1.50	5.333		1,125	278		1,403
6800	Tub surround, 3 wall, polypropylene	1 Carp	4	2		240	88		328
6900	PVC		4	2		365	88		453
7000	Fiberglass, minimum		4	2		375	88		463
7100	Maximum	▼	3	2.667	▼	635	118		753

10 21 23 – Cubicle Curtains and Track

10 21 23.16 Cubicle Track and Hardware									
0010	CUBICLE TRACK AND HARDWARE								
0020	Curtain track, box channel, ceiling mounted	1 Carp	135	.059	L.F.	5.70	2.61		8.31
0100	Suspended	"	100	.080	"	8.20	3.53		11.73
0300	Curtains, nylon mesh tops, fire resistant, 11 oz. per lineal yard								
0310	Polyester oxford cloth, 9' ceiling height	1 Carp	425	.019	L.F.	12	.83		12.83
0500	8' ceiling height	▼	425	.019	▼	9.85	.83		10.68
0700	Designer oxford cloth	▼	425	.019	▼	9.45	.83		10.28
0800	I.V. track systems								
0820	I.V. track, oval	1 Carp	135	.059	L.F.	5.25	2.61		7.86
0830	I.V. trolley		32	.250	Ea.	36	11.05		47.05
0840	I.V. pendent, (tree, 5 hook)	▼	32	.250	"	129	11.05		140.05

10 22 Partitions

10 22 13 – Wire Mesh Partitions

10 22 13.10 Partitions, Woven Wire									
0010	PARTITIONS, WOVEN WIRE for tool or stockroom enclosures								
0100	Channel frame, 1-1/2" diamond mesh, 10 ga. wire, painted								
0300	Wall panels, 4'-0" wide, 7' high	2 Carp	25	.640	Ea.	133	28		161
0400	8' high		23	.696		150	30.50		180.50
0600	10' high	▼	18	.889		179	39		218
0700	For 5' wide panels, add					5%			
0900	Ceiling panels, 10' long, 2' wide	2 Carp	25	.640		136	28		164
1000	4' wide		15	1.067		172	47		219
1200	Panel with service window & shelf, 5' wide, 7' high		20	.800		415	35.50		450.50
1300	8' high		15	1.067		415	47		462
1500	Sliding doors, full height, 3' wide, 7' high		6	2.667		430	118		548
1600	10' high		5	3.200		465	141		606
1800	6' wide sliding door, 7' full height		5	3.200		590	141		731
1900	10' high		4	4		730	176		906
2100	Swinging doors, 3' wide, 7' high, no transom		6	2.667		273	118		391
2200	7' high, 3' transom	▼	5	3.200	▼	325	141		466

10 22 16 – Folding Gates

10 22 16.10 Security Gates									
0010	SECURITY GATES for roll up type, see Section 08 33 13.10								
0300	Scissors type folding gate, ptd. steel, single, 6-1/2' high, 5-1/2' wide	2 Sswk	4	4	Opng.	229	197		426
0350	6-1/2' wide		4	4		242	197		439
0400	7-1/2' wide		4	4		215	197		412
0600	Double gate, 8' high, 8' wide		2.50	6.400		355	315		670
0650	10' wide	▼	2.50	6.400	▼	390	315		705

22 Partitions

22 16 – Folding Gates

22 16.10 Security Gates	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
12' wide	2 Sswk	2	8	Opng.	590	395		985	1,350
14' wide		2	8		675	395		1,070	1,450
Door gate, folding steel, 4' wide, 61" high		4	4		129	197		326	495
71" high		4	4		161	197		358	530
81" high		4	4		175	197		372	545
Window gates, 2' to 4' wide, 31" high		4	4		62.50	197		259.50	425
55" high		3.75	4.267		97.50	211		308.50	480
79" high	▼	3.50	4.571	▼	113	226		339	530

22 19 – Demountable Partitions

22 19.43 Demountable Composite Partitions

DEMOUNTABLE COMPOSITE PARTITIONS , add for doors									
Do not deduct door openings from total L.F.									
Demountable gypsum system on 2" to 2-1/2"									
steel studs, 9' high, 3" to 3-3/4" thick									
Vinyl clad gypsum	2 Carp	48	.333	L.F.	58	14.70		72.70	86
Fabric clad gypsum		44	.364		144	16.05		160.05	183
Steel clad gypsum	▼	40	.400	▼	156	17.65		173.65	199
1.75 system, aluminum framing, vinyl clad hardboard,									
paper honeycomb core panel, 1-3/4" to 2-1/2" thick									
9' high	2 Carp	48	.333	L.F.	97	14.70		111.70	130
7' high		60	.267		87	11.75		98.75	114
5' high	▼	80	.200	▼	73.50	8.80		82.30	94.50
Unitized gypsum system									
Unitized panel, 9' high, 2" to 2-1/2" thick									
Vinyl clad gypsum	2 Carp	48	.333	L.F.	125	14.70		139.70	160
Fabric clad gypsum	"	44	.364	"	206	16.05		222.05	251
Unitized mineral fiber system									
Unitized panel, 9' high, 2-1/4" thick, aluminum frame									
Vinyl clad mineral fiber	2 Carp	48	.333	L.F.	124	14.70		138.70	160
Fabric clad mineral fiber	"	44	.364	"	185	16.05		201.05	229
Movable steel walls, modular system									
Unitized panels, 9' high, 48" wide									
Baked enamel, pre-finished	2 Carp	60	.267	L.F.	141	11.75		152.75	173
Fabric clad steel		56	.286	"	203	12.60		215.60	243
Trackless wall, cork finish, semi-acoustic, 1-5/8" thick, minimum		325	.049	S.F.	37	2.17		39.17	44
Maximum		190	.084		41	3.71		44.71	50.50
Acoustic, 2" thick, minimum		305	.052		35	2.31		37.31	42
Maximum	▼	225	.071	▼	53.50	3.14		56.64	64
For acoustical partitions, add, minimum					2.22			2.22	2.44
Maximum				▼	10.35			10.35	11.40
For doors, see Sections 08 11 & 08 16									
For door hardware, see Section 08 71									
In-plant modular office system, w/prehung hollow core door									
3" thick polystyrene core panels									
12' x 12', 2 wall	2 Clab	3.80	4.211	Eq.	3,900	148		4,048	4,500
4 wall		1.90	8.421		6,800	296		7,096	7,925
16' x 16', 2 wall		3.60	4.444		5,850	156		6,006	6,675
4 wall	▼	1.80	8.889	▼	8,225	310		8,535	9,500

10 22 Partitions

10 22 23 – Portable Partitions, Screens, and Panels

10 22 23.13 Wall Screens		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Inch
							Labor	Equipment		
0010	WALL SCREENS , divider panels, free standing, fiber core									
0020	Fabric face straight									
0100	3'-0" long, 4'-0" high	2 Corp	100	.160	L.F.	146	7.05		153.05	
0200	5'-0" high		90	.178		103	7.85		110.85	
0500	6'-0" high		75	.213		120	9.40		129.40	
0900	5'-0" long, 4'-0" high		175	.091		90.50	4.03		94.53	
1000	5'-0" high		150	.107		98.50	4.70		103.20	
1500	6'-0" high		125	.128		114	5.65		119.65	
1600	6'-0" long, 5'-0" high		162	.099		95.50	4.36		99.86	
3200	Economical panels, fabric face, 4'-0" long, 5'-0" high		132	.121		50.50	5.35		55.85	
3250	6'-0" high		112	.143		54	6.30		60.30	
3300	5'-0" long, 5'-0" high		150	.107		43	4.70		47.70	
3350	6'-0" high		125	.128		44	5.65		49.65	
3450	Acoustical panels, 60 to 90 NRC, 3'-0" long, 5'-0" high		90	.178		89.50	7.85		97.35	
3550	6'-0" high		75	.213		99.50	9.40		108.90	
3600	5'-0" long, 5'-0" high		150	.107		56.50	4.70		61.20	
3650	6'-0" high		125	.128		65	5.65		70.65	
3700	6'-0" long, 5'-0" high		162	.099		48	4.36		52.36	
3750	6'-0" high		138	.116		56	5.10		61.10	
3800	Economy acoustical panels, 40 N.R.C., 4'-0" long, 5'-0" high		132	.121		50.50	5.35		55.85	
3850	6'-0" high		112	.143		54	6.30		60.30	
3900	5'-0" long, 6'-0" high		125	.128		44	5.65		49.65	
3950	6'-0" long, 5'-0" high		162	.099		41	4.36		45.36	
4000	Metal chalkboard, 6'-6" high, chalkboard, 1 side		125	.128		116	5.65		121.65	
4100	Metal chalkboard, 2 sides		120	.133		133	5.90		138.90	
4300	Tackboard, both sides	▼	123	.130	▼	105	5.75		110.75	

10 22 33 – Accordion Folding Partitions

10 22 33.10 Partitions, Accordion Folding

0010	PARTITIONS, ACCORDION FOLDING									
0100	Vinyl covered, over 150 S.F., frame not included									
0300	Residential, 1.25 lb. per S.F., 8' maximum height	2 Corp	300	.053	S.F.	20.50	2.35		22.85	
0400	Commercial, 1.75 lb. per S.F., 8' maximum height		225	.071		23.50	3.14		26.64	
0600	2 lb. per S.F., 17' maximum height		150	.107		24.50	4.70		29.20	
0700	Industrial, 4 lb. per S.F., 20' maximum height		75	.213		35	9.40		44.40	
0900	Acoustical, 3 lb. per S.F., 17' maximum height		100	.160		27.50	7.05		34.55	
1200	5 lb. per S.F., 20' maximum height		95	.168		38	7.45		45.45	
1300	5.5 lb. per S.F., 17' maximum height		90	.178		44.50	7.85		52.35	
1400	Fire rated, 4.5 psf, 20' maximum height		160	.100		44.50	4.41		48.91	
1500	Vinyl clad wood or steel, electric operation, 5.0 psf		160	.100		52	4.41		56.41	
1900	Wood, non-acoustic, birch or mahogany, to 10' high	▼	300	.053	▼	28	2.35		30.35	

10 22 39 – Folding Panel Partitions

10 22 39.10 Partitions, Folding Panel

0010	PARTITIONS, FOLDING PANEL , acoustic, wood									
0100	Vinyl faced, to 18' high, 6 psf, minimum	2 Corp	60	.267	S.F.	54	11.75		65.75	
0150	Average		45	.356		64.50	15.70		80.20	
0200	Maximum		30	.533		83.50	23.50		107	
0400	Farmica or hardwood finish, minimum		60	.267		55.50	11.75		67.25	
0500	Maximum		30	.533		59.50	23.50		83	
0600	Wood, low acoustical type, 4.5 psf, to 14' high		50	.320		40.50	14.10		54.60	
1100	Steel, acoustical, 9 to 12 lb. per S.F., vinyl faced, minimum		60	.267		57.50	11.75		69.25	
1200	Maximum	▼	30	.533	▼	70.50	23.50		94	

22 Partitions

239 – Folding Panel Partitions

39.10 Partitions, Folding Panel	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Aluminum framed, acoustical, to 12' high, 5.5 psf, minimum	2 Corp	60	.267	S.F.	39	11.75		50.75	60.50
Maximum		30	.533		47	23.50		70.50	87.50
6.5 lb. per S.F., minimum		60	.267		41	11.75		52.75	63
Maximum	↓	30	.533	↓	50.50	23.50		74	91.50

243 – Sliding Partitions

43.10 Partitions, Sliding

PARTITIONS, SLIDING	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Acoustic air wall, 1-5/8" thick, minimum	2 Corp	375	.043	S.F.	31.50	1.88		33.38	37.50
Maximum		365	.044		54	1.93		55.93	62.50
2-1/4" thick, minimum		360	.044		35.50	1.96		37.46	42
Maximum	↓	330	.048	↓	62	2.14		64.14	71.50
For track type, add to above				L.F.	115			115	127
Overhead track type, acoustical, 3" thick, 11 psf, minimum	2 Corp	350	.046	S.F.	79.50	2.02		81.52	90.50
Maximum	"	300	.053	"	95.50	2.35		97.85	109

26 Wall and Door Protection

2613 – Corner Guards

613.10 Metal Corner Guards

METAL CORNER GUARDS	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Steel angle w/anchors, 1" x 1" x 1/4", 1.5#/L.F.	2 Corp	160	.100	L.F.	6.85	4.41		11.26	14.35
2" x 2" x 1/4" angles, 3.2#/L.F.		150	.107		9.60	4.70		14.30	17.80
3" x 3" x 5/16" angles, 6.1#/L.F.		140	.114		13.70	5.05		18.75	23
4" x 4" x 5/16" angles on masonry, 8.2#/L.F.	↓	55	.291		16.35	12.85		29.20	37.50
For angles drilled and anchored to masonry, add					15%	120%			
Drilled and anchored to concrete, add					20%	170%			
For galvanized angles, add					35%				
For stainless steel angles, add					100%				
Steel door track/wheel guards, 4' - 0" high	E-4	22	1.455	Eo.	153	72.50	5.55	231.05	305
Pipe bumper for truck doors, 8' long, 6" diameter, filled		20	1.600		725	80	6.10	811.10	950
8" diameter	↓	20	1.600	↓	1,075	80	6.10	1,161.10	1,325

613.20 Corner Protection

CORNER PROTECTION	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Stainless steel, 16 ga., adhesive mount, 3-1/2" leg	1 Sswk	80	.100	L.F.	19.60	4.94		24.54	30.50
12 ga. stainless, adhesive mount	"	80	.100		21.50	4.94		26.44	32.50
For screw mount, add						10%			
Vinyl acrylic, adhesive mount, 3" leg	1 Corp	128	.063		8.20	2.76		10.96	13.25
1-1/2" leg		160	.050		4.85	2.21		7.06	8.75
Screw mounted, 3" leg		80	.100		8.40	4.41		12.81	16.05
1-1/2" leg		100	.080		4.59	3.53		8.12	10.50
Clear plastic, screw mounted, 2-1/2"		60	.133		4.69	5.90		10.59	14.20
Vinyl cover, alum. retainer, surface mount, 3" x 3"		48	.167		9.25	7.35		16.60	21.50
2" x 2"		48	.167		9.45	7.35		16.80	21.50
Flush mounted, 3" x 3"		32	.250		20.50	11.05		31.55	39.50
2" x 2"	↓	32	.250	↓	16.70	11.05		27.75	35.50

2616 – Bumper Guards

2616.10 Wallguard

WALLGUARD	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Rub rail, vinyl, adhesive mounted	1 Corp	185	.043	L.F.	7.85	1.91		9.76	11.60
Neoprene, aluminum backing, 1-1/2" x 2"		110	.073		8.80	3.21		12.01	14.65
Trolley rail, PVC, clipped to wall, 5" high	↓	185	.043	↓	8.70	1.91		10.61	12.55

10 26 Wall and Door Protection

10 26 16 – Bumper Guards

10 26 16.10 Wallguard		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl.
							Labor	Equipment		
1050	8" high	1 Carp	180	.044	L.F.	11.10	1.96		13.06	
1200	Bed bumper, vinyl acrylic, alum. retainer, 21" long		10	.800	Ea.	40.50	35.50		76	
1300	53" long with aligner		9	.889	"	102	39		141	
1400	Bumper, vinyl cover, alum. retain., cush. mnt., 1-1/2" x 2-3/4"		80	.100	L.F.	14.20	4.41		18.61	
1500	2" x 4-1/4"		80	.100		20.50	4.41		24.91	
1600	Surface mounted, 1-3/4" x 3-5/8"		80	.100		11.95	4.41		16.36	
2000	Crash rail, vinyl cover, alum. retainer, 1" x 4"		110	.073		11.05	3.21		14.26	
2100	1" x 8"		90	.089		17.25	3.92		21.17	
2150	Vinyl inserts, aluminum plate, 1" x 2-1/2"		110	.073		14.90	3.21		18.11	
2200	1" x 5"		90	.089		23	3.92		26.92	
3000	Handrail/bumper, vinyl cover, alum. retainer									
3010	Bracket mounted, flat rail, 5-1/2"	1 Carp	80	.100	L.F.	18.30	4.41		22.71	
3100	6-1/2"		80	.100		23	4.41		27.41	
3200	Brnze bracket, 1-3/4" diam. rail		80	.100		16.50	4.41		20.91	

10 28 Toilet, Bath, and Laundry Accessories

10 28 13 – Toilet Accessories

10 28 13.13 Commercial Toilet Accessories

0010	COMMERCIAL TOILET ACCESSORIES									
0200	Curtain rod, stainless steel, 5' long, 1" diameter	1 Carp	13	.615	Ea.	36.50	27		63.50	
0300	1-1/4" diameter		13	.615		27.50	27		54.50	
0350	Chrome, 1" diameter		13	.615		28	27		55	
0360	For vinyl curtain, add		1950	.004	S.F.	.84	.18		1.02	
0400	Diaper changing station, horizontal, wall mounted, plastic		10	.800	Ea.	218	35.50		253.50	
0500	Dispenser units, combined soap & towel dispensers,									
0510	mirror and shelf, flush mounted	1 Carp	10	.800	Ea.	310	35.50		345.50	
0600	Towel dispenser and waste receptacle,									
0610	18 gallon capacity	1 Carp	10	.800	Ea.	325	35.50		360.50	
0800	Grab bar, straight, 1-1/4" diameter, stainless steel, 18" long		24	.333		29	14.70		43.70	
0900	24" long		23	.348		29.50	15.35		44.85	
1000	30" long		22	.364		31.50	16.05		47.55	
1100	36" long		20	.400		37	17.65		54.65	
1105	42" long		20	.400		37.50	17.65		55.15	
1200	1-1/2" diameter, 24" long		23	.348		30	15.35		45.35	
1300	36" long		20	.400		34.50	17.65		52.15	
1310	42" long		18	.444		43	19.60		62.60	
1500	Tub bar, 1-1/4" diameter, 24" x 36"		14	.571		87	25		112	
1600	Plus vertical arm		12	.667		85.50	29.50		115	
1900	End tub bar, 1" diameter, 90° angle, 16" x 32"		12	.667		106	29.50		135.50	
2010	Tub/shower/toilet, 2-wall, 36" x 24"		12	.667		78	29.50		107.50	
2300	Hand dryer, surface mounted, electric, 115 volt, 20 amp		4	2		475	88		563	
2400	230 volt, 10 amp		4	2		720	88		808	
2600	Hat and coat strip, stainless steel, 4 hook, 36" long		24	.333		71	14.70		85.70	
2700	6 hook, 60" long		20	.400		112	17.65		129.65	
3000	Mirror, with stainless steel 3/4" square frame, 18" x 24"		20	.400		42.50	17.65		60.15	
3100	36" x 24"		15	.533		96.50	23.50		120	
3200	48" x 24"		10	.800		144	35.50		179.50	
3300	72" x 24"		6	1.333		206	59		265	
3500	With 5" stainless steel shelf, 18" x 24"		20	.400		181	17.65		198.65	
3600	36" x 24"		15	.533		200	23.50		223.50	
3700	48" x 24"		10	.800		236	35.50		271.50	

28 Toilet, Bath, and Laundry Accessories

8 13 – Toilet Accessories

13.13 Commercial Toilet Accessories	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
72" x 24"	1 Corp	6	1.333	Eo.	291	59		350	410
Map holder strip, stainless steel, 5 holders, 48" long		20	.400		86	17.65		103.65	122
Napkin/tompon dispenser, recessed		15	.533		520	23.50		543.50	610
Napkin receptacle, recessed		6.50	1.231		157	54.50		211.50	257
Robe hook, single, regular		36	.222		21	9.80		30.80	38
Heavy duty, concealed mounting		36	.222		15.20	9.80		25	32
Soap dispenser, chrome, surface mounted, liquid		20	.400		42	17.65		59.65	73.50
Powder		20	.400		54.50	17.65		72.15	87
Recessed stainless steel, liquid		10	.800		123	35.50		158.50	190
Powder		10	.800		180	35.50		215.50	253
Soap tank, stainless steel, 1 gallon		10	.800		200	35.50		235.50	275
5 gallon		5	1.600		275	70.50		345.50	410
Shelf, stainless steel, 5" wide, 18 go., 24" long		24	.333		64.50	14.70		79.20	93.50
48" long		16	.500		106	22		128	151
8" wide shelf, 18 go., 24" long		22	.364		68.50	16.05		84.55	100
48" long		14	.571		121	25		146	172
Toilet seat cover dispenser, stainless steel, recessed		20	.400		158	17.65		175.65	201
Surface mounted		15	.533		32	23.50		55.50	71.50
Toilet tissue dispenser, surface mounted, SS, single roll		30	.267		17.05	11.75		28.80	37
Double roll		24	.333		22.50	14.70		37.20	47.50
Plastic, twin/jumbo dbl. roll		24	.333		25.50	14.70		40.20	50.50
Towel bar, stainless steel, 18" long		23	.348		39.50	15.35		54.85	67
30" long		21	.381		111	16.80		127.80	149
Towel dispenser, stainless steel, surface mounted		16	.500		42.50	22		64.50	80.50
Flush mounted, recessed		10	.800		231	35.50		266.50	310
Plastic, touchless, battery operated		16	.500		78.50	22		100.50	121
Towel holder, hotel type, 2 guest size		20	.400		44.50	17.65		62.15	76
Towel shelf, stainless steel, 24" long, 8" wide		20	.400		56.50	17.65		74.15	89
Tumbler holder, tumbler only		30	.267		42	11.75		53.75	64.50
Soap, tumbler & toothbrush		30	.267		19.25	11.75		31	39
Wall urn ash receiver, surface mount, 11" long		12	.667		94.50	29.50		124	149
7-1/2", long		18	.444		116	19.60		135.60	158
Waste receptacles, stainless steel, with top, 13 gallon		10	.800		276	35.50		311.50	360
36 gallon		8	1		365	44		409	470

28 16 – Bath Accessories

28 16.20 Medicine Cabinets

MEDICINE CABINETS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
With mirror, st. st. frame, 16" x 22", unlighted	1 Corp	14	.571	Eo.	78	25		103	125
Wood frame		14	.571		121	25		146	173
Sliding mirror doors, 20" x 16" x 4-3/4", unlighted		7	1.143		114	50.50		164.50	203
24" x 19" x 8-1/2", lighted		5	1.600		177	70.50		247.50	305
Triple door, 30" x 32", unlighted, plywood body		7	1.143		320	50.50		370.50	430
Steel body		7	1.143		370	50.50		420.50	485
Oak door, wood body, beveled mirror, single door		7	1.143		175	50.50		225.50	270
Double door		6	1.333		390	59		449	520
Hotel cabinets, stainless, with lower shelf, unlighted		10	.800		200	35.50		235.50	274
Lighted		5	1.600		300	70.50		370.50	440

28 23 – Laundry Accessories

28 23.13 Built-In Ironing Boards

BUILT-IN IRONING BOARDS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Including cabinet, board & light, minimum	1 Corp	2	4	Eo.	345	176		521	650
Maximum, see also Section 11 23 23.13	"	1.50	5.333	"	580	235		815	1,000

10 31 Manufactured Fireplaces

10 31 13 – Manufactured Fireplace Chimneys

10 31 13.10 Fireplace Chimneys		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
FIREPLACE CHIMNEYS							Labor	Equipment	
0010	FIREPLACE CHIMNEYS								
0500	Chimney dbl. wall, all stainless, over 8'-6", 7" diam., add to fireplace	1 Carp	33	.242	V.L.F.	81	10.70		91.70
0600	10" diameter, add to fireplace		32	.250		119	11.05		130.05
0700	12" diameter, add to fireplace		31	.258		210	11.40		221.40
0800	14" diameter, add to fireplace		30	.267	▼	233	11.75		244.75
1000	Simulated brick chimney top, 4' high, 16" x 16"		10	.800	Ea.	425	35.50		460.50
1100	24" x 24"	▼	7	1.143	"	520	50.50		570.50

10 31 13.20 Chimney Accessories

0010	CHIMNEY ACCESSORIES								
0020	Chimney screens, galv., 13" x 13" flue	1 Bric	8	1	Ea.	58.50	44		102.50
0050	24" x 24" flue		5	1.600		118	70.50		188.50
0200	Stainless steel, 13" x 13" flue		8	1		97.50	44		141.50
0250	20" x 20" flue		5	1.600		175	70.50		245.50
2400	Squirrel and bird screens, galvanized, 8" x 8" flue		16	.500		46.50	22		68.50
2450	13" x 13" flue	▼	12	.667	▼	50.50	29.50		80

10 31 16 – Manufactured Fireplace Forms

10 31 16.10 Fireplace Forms

0010	FIREPLACE FORMS								
1800	Fireplace forms, no accessories, 32" opening	1 Bric	3	2.667	Ea.	670	118		788
1900	36" opening			2.50	3.200	855	141		996
2000	40" opening			2	4	1,125	176		1,301
2100	78" opening	▼	1.50	5.333	▼	1,650	235		1,885

10 31 23 – Prefabricated Fireplaces

10 31 23.10 Fireplace, Prefabricated

0010	FIREPLACE, PREFABRICATED, free standing or wall hung								
0100	With hood & screen, minimum	1 Carp	1.30	6.154	Ea.	1,200	271		1,471
0150	Average		1	8		1,425	355		1,780
0200	Maximum		.90	8.889	▼	2,725	390		3,115
1500	Simulated logs, gas fired, 40,000 BTU, 2' lang, minimum		7	1.143	Set	500	50.50		550.50
1600	Maximum		6	1.333		1,100	59		1,159
1700	Electric, 1,500 BTU, 1'-6" lang, minimum		7	1.143		200	50.50		250.50
1800	11,500 BTU, maximum		6	1.333	▼	450	59		509
2000	Fireplace, built-in, 36" hearth, radiant		1.30	6.154	Ea.	650	271		921
2100	Recirculating, small fan		1	8		1,025	355		1,380
2150	Large fan		.90	8.889		2,050	390		2,440
2200	42" hearth, radiant		1.20	6.667		920	294		1,214
2300	Recirculating, small fan		.90	8.889		1,250	390		1,640
2350	Large fan		.80	10		2,050	440		2,490
2400	48" hearth, radiant		1.10	7.273		1,925	320		2,245
2500	Recirculating, small fan		.80	10		2,400	440		2,840
2550	Large fan		.70	11.429		3,700	505		4,205
3000	See through, including doors		.80	10		3,125	440		3,565
3200	Corner (2 wall)	▼	1	8	▼	3,175	355		3,530

32 Fireplace Specialties

2 13 – Fireplace Dampers

13.10 Dampers

DAMPERS

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Damper, rotary control, steel, 30" opening	1 Bric	6	1.333	Eq.	89	59		148	187
Cost iron, 30" opening		6	1.333		97	59		156	196
36" opening		6	1.333		105	59		164	205
48" opening		6	1.333		150	59		209	254
60" opening		6	1.333		335	59		394	460
72" opening		5	1.600		405	70.50		475.50	550
84" opening, special order		5	1.600		865	70.50		935.50	1,050
96" opening, special order		4	2		880	88		968	1,100
Steel plate, poker control, 60" opening		8	1		305	44		349	400
84" opening, special order		5	1.600		560	70.50		630.50	720
"Universol" type, chain operated, 32" x 20" opening		8	1		239	44		283	330
48" x 24" opening		5	1.600		355	70.50		425.50	495

2 23 – Fireplace Doors

23.10 Doors

DOORS

Cleanout doors and frames, cost iron, 8" x 8"	1 Bric	12	.667	Eq.	39	29.50		68.50	87.50
12" x 12"		10	.800		108	35.50		143.50	173
18" x 24"		8	1		143	44		187	224
Cost iron frame, steel door, 24" x 30"		5	1.600		310	70.50		380.50	445
Dutch Oven door and frame, cost iron, 12" x 15" opening		13	.615		125	27		152	179
Copper plated, 12" x 15" opening		13	.615		245	27		272	310

35 Stoves

35 13 – Heating Stoves

35.13 Woodburning Stoves

WOODBURNING STOVES

Cost iron, minimum	2 Corp	1.30	12.308	Eq.	905	545		1,450	1,825
Average		1	16		1,675	705		2,380	2,925
Maximum		.80	20		2,450	880		3,330	4,050
For gas log lighter, odd					42.50			42.50	46.50

44 Fire Protection Specialties

44 13 – Fire Protection Cabinets

44.13.53 Fire Equipment Cabinets

FIRE EQUIPMENT CABINETS, not equipped, 20 ga. steel box

recessed, D.S. gloss in door, box size given									
Portable extinguisher, single, 8" x 12" x 27", alum. door & frame	Q-12	8	2	Eq.	131	97.50		228.50	291
Steel door and frame	"	8	2	"	90.50	97.50		188	247
Hose rack assy., 1-1/2" valve & 100' hose, 24" x 40" x 5-1/2"									
Aluminum door and frame	Q-12	6	2.667	Eq.	305	130		435	530
Steel door and frame		6	2.667		360	130		490	590
Stainless steel door and frame		6	2.667		405	130		535	640
Hose rack assy., 2-1/2" x 1-1/2" valve, 100' hose, 24" x 40" x 8"									
Aluminum door and frame	Q-12	6	2.667	Eq.	305	130		435	530
Steel door and frame		6	2.667		208	130		338	425
Stainless steel door and frame		6	2.667		410	130		540	645
Hose rack assy., 2-1/2" x 1-1/2" valve, 100' hose and extinguisher, 30" x 40" x 8"									

10 44 Fire Protection Specialties

10 44 13 – Fire Protection Cabinets

10 44 13.53 Fire Equipment Cabinets

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	
5100	Aluminum door and frame	Q-12	5	3.200	Eo.	390	156		546	
5200	Steel door and frame		5	3.200		260	156		416	
5300	Stainless steel door and frame	▼	5	3.200	▼	475	156		631	
8000	Valve cabinet for 2-1/2" FD angle valve, 18" x 18" x 8"									
8100	Aluminum door and frame	Q-12	12	1.333	Eo.	135	65		200	
8200	Steel door and frame		12	1.333		111	65		176	
8300	Stainless steel door and frame	▼	12	1.333	▼	182	65		247	

10 44 16 – Fire Extinguishers

10 44 16.13 Portable Fire Extinguishers

0010	PORTABLE FIRE EXTINGUISHERS									
0140	CO ₂ , with hose and "H" horn, 10 lb.				Eo.	248			248	
0160	15 lb.					315			315	
0180	20 lb.				▼	355			355	
1000	Dry chemical, pressurized									
1040	Standard type, portable, pointed, 2-1/2 lb.				Eo.	34.50			34.50	
1060	5 lb.					47			47	
1080	10 lb.					74.50			74.50	
1100	20 lb.					126			126	
1120	30 lb.					385			385	
1300	Standard type, wheeled, 150 lb.					2,150			2,150	
2000	ABC all purpose type, portable, 2-1/2 lb.					21			21	
2060	5 lb.					26.50			26.50	
2080	9-1/2 lb.					44			44	
2100	20 lb.					79.50			79.50	
5000	Pressurized water, 2-1/2 gallon, stainless steel					121			121	
5060	With anti-freeze					106			106	
9400	Installation of extinguishers, 12 or more, on noncombustible surface	1 Corp	30	.267			11.75		11.75	
9420	On masonry or concrete	"	15	.533	▼		23.50		23.50	

10 44 16.16 Wheeled Fire Extinguisher Units

0010	WHEELED FIRE EXTINGUISHER UNITS									
0350	CO ₂ , portable, with swivel horn									
0360	Wheeled type, cart mounted, 50 lb.				Eo.	1,025			1,025	
0400	100 lb.				"	2,625			2,625	
2200	ABC all purpose type									
2300	Wheeled, 45 lb.				Eo.	735			735	
2360	150 lb.				"	1,850			1,850	

10 51 Lockers

10 51 13 – Metal Lockers

10 51 13.10 Lockers

0011	LOCKERS steel, baked enamel, pre-assembled									
0110	Single tier box locker, 12" x 15" x 72"	1 Shee	20	.400	Eo.	220	21		241	
0120	18" x 15" x 72"		20	.400		241	21		262	
0130	12" x 18" x 72"		20	.400		255	21		276	
0140	18" x 18" x 72"		20	.400		265	21		286	
0410	Double tier, 12" x 15" x 36"		30	.267		225	13.90		238.90	
0420	18" x 15" x 36"		30	.267		235	13.90		248.90	
0430	12" x 18" x 36"		30	.267		236	13.90		249.90	
0440	18" x 18" x 36"		30	.267		236	13.90		249.90	
0500	Two person, 18" x 15" x 72"		20	.400	▼	268	21		289	

51 Lockers

51 13 – Metal Lockers

13.10 Lockers	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
						Labor	Equipment		
18" x 18" x 72"	1 Shee	20	.400	Eq.	279	21		300	335
Duplex, 15" x 15" x 72"		20	.400		268	21		289	325
15" x 21" x 72"		20	.400	▼	315	21		336	380
5 tier box lockers, minimum		30	.267	Opng.	42.50	13.90		56.40	68
Maximum		24	.333		49.50	17.40		66.90	81
6 tier box lockers, minimum		36	.222		35	11.60		46.60	56
Maximum		30	.267	▼	43	13.90		56.90	68
Wire meshed wardrobe, floor, mtd., open front vorsity type	▼	7.50	1.067	Eq.	247	55.50		302.50	355
16-person locker unit with clothing rack									
72 wide x 15" deep x 72" high	1 Shee	15	.533	Eq.	445	28		473	535
18" deep	"	15	.533	"	600	28		628	705
Wall mounted lockers, 4 person, with coat bor									
48" wide x 18" deep x 12" high	1 Shee	20	.400	Eq.	305	21		326	365
Rock w/24 wire mesh baskets		1.50	5.333	Set	390	278		668	850
30 baskets		1.25	6.400		365	335		700	910
36 baskets		.95	8.421		460	440		900	1,175
42 baskets	▼	.80	10	▼	435	520		955	1,275
For built-in lock with 2 keys, odd				Eq.	13.15			13.15	14.45
For hanger rods, odd					1.86			1.86	2.05
For number plate kit, 100 plates #1 - #100, odd	1 Shee	4	2		66	104		170	232
For locker base, closed front panel		90	.089		6.90	4.64		11.54	14.60
End panel, bolted		36	.222		8.25	11.60		19.85	26.50
For sloping top, 12" wide		24	.333		28.50	17.40		45.90	58
15" wide		24	.333		31	17.40		48.40	60.50
18" wide		24	.333		28	17.40		45.40	57.50
Sloping top end panel, 12" deep		72	.111		10.95	5.80		16.75	21
15" deep		72	.111		11.10	5.80		16.90	21
18" deep		72	.111		11.60	5.80		17.40	21.50
For finish end panels, steel, 60" high, 15" deep		12	.667		50	35		85	108
72" high, 12" deep		12	.667		50	35		85	108
18" deep	▼	12	.667	▼	60	35		95	119
For 'ready to assemble' lockers,									
Add to labor						75%			
Deduct from material					20%				

51 26 – Plastic Lockers

51 26.13 Recycled Plastic Lockers

RECYCLED PLASTIC LOCKERS, 30% recycled									
Single tier box locker, 12" x 12" x 72"		1 Shee	8	1	Eq.	420	52	472	545
12" x 15" x 72"			8	1		420	52	472	540
12" x 18" x 72"			8	1		405	52	457	525
Double tier, 12" x 12" x 72"			21	.381		435	19.85	454.85	510
12" x 15" x 72"			21	.381		430	19.85	449.85	505
12" x 18" x 72"		▼	21	.381	▼	420	19.85	439.85	490

51 53 – Locker Room Benches

51 53.10 Benches

BENCHES									
Locker bench, laminated maple, top only	1 Shee	100	.080	L.F.	15.40	4.17		19.57	23.50
Pedestals, steel pipe		25	.320	Eq.	41	16.70		57.70	70.50
Plastic, 9.5" top with PVC pedestals	▼	80	.100	L.F.	58	5.20		63.20	72

10 55 Postal Specialties

10 55 23 – Mail Boxes

10 55 23.10 Commercial Mail Boxes		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	In
COMMERCIAL MAIL BOXES							Labor	Equipment		
0010	Horiz., key lock, 5"H x 6"W x 15"D, alum., rear load	1 Corp	34	.235	EO.	35	10.40		45.40	
0100	Front loading		34	.235		35	10.40		45.40	
0200	Double, 5"H x 12"W x 15"D, rear loading		26	.308		67.50	13.55		81.05	
0300	Front loading		26	.308		67	13.55		80.55	
0500	Quadruple, 10"H x 12"W x 15"D, rear loading		20	.400		81.50	17.65		99.15	
0600	Front loading		20	.400		95.50	17.65		113.15	
0800	Vertical, front load, 15"H x 5"W x 6"D, alum., per compartment		34	.235		30	10.40		40.40	
0900	Bronze, duronodic finish		34	.235		40	10.40		50.40	
1000	Steel, enameled		34	.235		30	10.40		40.40	
1700	Alphabetical directories, 120 names		10	.800		130	35.50		165.50	
1800	Letter collection box		6	1.333		660	59		719	
1830	Lobby collection boxes, aluminum	2 Shee	5	3.200		2,025	167		2,192	2
1840	Bronze or stainless	"	4.50	3.556		2,500	185		2,685	3
1900	Letter slot, residential	1 Corp	20	.400		89.50	17.65		107.15	
2000	Post office type		8	1		105	44		149	
2200	Post office counter window, with grille		2	4		550	176		726	
2250	Key keeper, single key, aluminum		26	.308		37	13.55		50.55	
2300	Steel, enameled		26	.308		107	13.55		120.55	

10 56 Storage Assemblies

10 56 13 – Metal Storage Shelving

10 56 13.10 Shelving

SHELVING										
0010	Metal, industrial, cross-braced, 3' wide, 12" deep	1 Sswk	175	.046	SF Shlf	7.15	2.26		9.41	
0100	24" deep		330	.024		4.61	1.20		5.81	
0300	4' wide, 12" deep		185	.043		6.20	2.13		8.33	
0400	24" deep		380	.021		4.46	1.04		5.50	
1200	Enclosed sides, cross-braced back, 3' wide, 12" deep		175	.046		11.25	2.26		13.51	
1300	24" deep		290	.028		8.25	1.36		9.61	
1500	Fully enclosed, sides and back, 3' wide, 12" deep		150	.053		13.70	2.63		16.33	
1600	24" deep		255	.031		9.20	1.55		10.75	
1800	4' wide, 12" deep		150	.053		9.25	2.63		11.88	
1900	24" deep		290	.028		7	1.36		8.36	
2200	Wide span, 1,600 lb. capacity per shelf, 6' wide, 24" deep		380	.021		6.30	1.04		7.34	
2400	36" deep		440	.018		6.40	.90		7.30	
2600	8' wide, 24" deep		440	.018		6.85	.90		7.75	
2800	36" deep		520	.015		5.55	.76		6.31	
4000	Pallet racks, steel frame 5,000 lb. capacity, 8' long, 36" deep	2 Sswk	450	.036		8.70	1.75		10.45	
4200	42" deep		500	.032		7.85	1.58		9.43	
4400	48" deep		520	.031		7.05	1.52		8.57	

10 56 13.20 Parts Bins

PARTS BINS metal, gray baked enamel finish										
0100	6'-3" high, 3' wide									
0300	12 bins, 18" wide x 12" high, 12" deep	2 Clob	10	1.600	EO.	315	56		371	4
0400	24" deep		10	1.600		470	56		526	6
0600	72 bins, 6" wide x 6" high, 12" deep		8	2		560	70		630	7
0700	18" deep		8	2		790	70		860	5
1000	7'-3" high, 3' wide									
1200	14 bins, 18" wide x 12" high, 12" deep	2 Clob	10	1.600	EO.	340	56		396	4
1300	24" deep		10	1.600		450	56		506	5

56 Storage Assemblies

613 - Metal Storage Shelving

13.20 Parts Bins	Daily		Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
	Crew	Output				Labor	Equipment		
84 bins, 6" wide x 6" high, 12" deep	2 Clab	8	2	Ea.	775	70		845	960
24" deep	▼	8	2	▼	980	70		1,050	1,175

57 Wardrobe and Closet Specialties

713 - Hat and Coat Racks

13.10 Coat Racks and Wardrobes

COAT RACKS AND WARDROBES									
Hat & coat rack, floor model, 6 hangers									
Standing, beech wood, 21" x 21" x 72", chrome				Ea.	237			237	260
18 gauge tubular steel, 21" x 21" x 69", wood walnut				"	289			289	320
16 gauge steel frame, 22 gauge steel shelves									
Single pedestal, 30" x 18" x 63"				Ea.	257			257	283
Single face rack, 29" x 18-1/2" x 62"					281			281	310
51" x 18-1/2" x 70"					395			395	435
Double face rack, 39" x 26" x 70"					350			350	385
63" x 26" x 70"				▼	425			425	470
For 2" ball casters, add				Set	88			88	97
Utility hook strips, 3/8" x 2-1/2" x 18", 6 hooks	1 Carp	48	.167	Ea.	58	7.35		65.35	75
34" long, 12 hooks	"	48	.167	"	55.50	7.35		62.85	72.50
Wall mounted racks, 16 gauge steel frame, 22 gauge steel shelves									
12" x 15" x 26", 6 hangers	1 Carp	32	.250	Ea.	155	11.05		166.05	187
12" x 15" x 50", 12 hangers	"	32	.250	"	181	11.05		192.05	216
Wardrobe cabinet, steel, baked enamel finish									
36" x 21" x 78", incl. top shelf & hanger rod				Ea.	282			282	310

5723 - Closet and Utility Shelving

723.19 Wood Closet and Utility Shelving

WOOD CLOSET AND UTILITY SHELVING									
Pine, clear grade, no edge band, 1" x 8"									
1" x 10"	1 Carp	115	.070	L.F.	3.01	3.07		6.08	8.05
1" x 12"		110	.073		3.75	3.21		6.96	9.05
		105	.076		4.52	3.36		7.88	10.10
Plywood, 3/4" thick with lumber edge, 12" wide									
24" wide		75	.107		1.55	4.70		6.25	8.95
		70	.114	▼	2.72	5.05		7.77	10.75
Bakcase, clear grade pine, shelves 12" O.C., 8" deep, per S.F. shelf									
12" deep shelves		70	.114	S.F.	9.80	5.05		14.85	18.50
		65	.123	"	14.70	5.45		20.15	24.50
Adjustable closet rod and shelf, 12" wide, 3' long									
8' long		20	.400	Ea.	10.45	17.65		28.10	38.50
		15	.533	"	19.35	23.50		42.85	57.50
Prefinished shelves with supports, stack, 8" wide									
10" wide		75	.107	L.F.	3.17	4.70		7.87	10.75
	▼	70	.114	"	4.32	5.05		9.37	12.50

10 71 Exterior Protection

10 71 13 – Exterior Sun Control Devices

10 71 13.19 Rolling Exterior Shutters

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl. O&M
0010	ROLLING EXTERIOR SHUTTERS									
0020	Roll-up, manual operation, aluminum, 3' x 4', incl. frame	2 Carp	8	2	Ea.	765	88		853	
0030	6' x 7'	"	8	2	"	1,600	88		1,688	

10 73 Protective Covers

10 73 13 – Awnings

10 73 13.10 Awnings, Fabric

0010	AWNINGS, FABRIC									
0020	Including acrylic canvas and frame, standard design									
0100	Door and window, slope, 3' high, 4' wide	1 Carp	4.50	1.778	Ea.	705	78.50		783.50	
0110	6' wide		3.50	2.286		910	101		1,011	
0120	8' wide		3	2.667		1,100	118		1,218	
0200	Quarter round convex, 4' wide		3	2.667		1,100	118		1,218	
0210	6' wide		2.25	3.556		1,425	157		1,582	
0220	8' wide		1.80	4.444		1,750	196		1,946	
0300	Dome, 4' wide		7.50	1.067		425	47		472	
0310	6' wide		3.50	2.286		950	101		1,051	
0320	8' wide		2	4		1,700	176		1,876	
0350	Elongated dome, 4' wide		1.33	6.015		1,575	265		1,840	
0360	6' wide		1.11	7.207		1,900	320		2,220	
0370	8' wide		1	8		2,225	355		2,580	
1000	Entry or walkway, peak, 12' long, 4' wide	2 Carp	.90	17.778		5,025	785		5,810	
1010	6' wide		.60	26.667		7,725	1,175		8,900	
1020	8' wide		.40	40		10,700	1,775		12,475	
1100	Radius with dome end, 4' wide		1.10	14.545		3,800	640		4,440	
1110	6' wide		.70	22.857		6,125	1,000		7,125	
1120	8' wide		.50	32		8,700	1,400		10,100	
2000	Retractable lateral arm awning, manual									
2010	To 12' wide, 8' - 6" projection	2 Carp	1.70	9.412	Ea.	1,125	415		1,540	
2020	To 14' wide, 8' - 6" projection		1.10	14.545		1,325	640		1,965	
2030	To 19' wide, 8' - 6" projection		.85	18.824		1,800	830		2,630	
2040	To 24' wide, 8' - 6" projection		.67	23.881		2,275	1,050		3,325	
2050	Motor for above, add	1 Carp	2.67	3		970	132		1,102	
3000	Patio/deck canopy with frame									
3010	12' wide, 12' projection	2 Carp	2	8	Ea.	1,600	355		1,955	
3020	16' wide, 14' projection	"	1.20	13.333		2,500	590		3,090	
9000	For fire retardant canvas, add					7%				
9010	For lettering or graphics, add					35%				
9020	For painted or coated acrylic canvas, deduct					8%				
9030	For translucent or opaque vinyl canvas, add					10%				
9040	For 6 or more units, deduct					20%	15%			

10 73 16 – Canopies

10 73 16.20 Metal Canopies

0010	METAL CANOPIES									
0020	Wall hung, .032", aluminum, prefinished, 8' x 10'	K-2	1.30	18.462	Ea.	2,150	830	203	3,183	
0300	8' x 20'		1.10	21.818		4,275	980	240	5,495	
0500	10' x 10'		1.30	18.462		2,400	830	203	3,433	
0700	10' x 20'		1.10	21.818		4,450	980	240	5,670	
1000	12' x 20'		1	24		5,475	1,075	264	6,814	
1360	12' x 30'		.80	30		8,050	1,350	330	9,730	

73 Protective Covers

73.16 – Canopies

73.16.20 Metal Canopies

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	Bare Costs Equipment	Total	Total Incl O&P
12' x 40'	K-2	.60	40	Eq.	9,800	1,800	440	12,040	14,400
For free standing units, add				▼	20%	10%			
Aluminum entrance canopies, flat soffit, .032"									
3'-6" x 4'-0", clear anodized	2 Corp	4	4	Eq.	900	176		1,076	1,250
Bronze anodized		4	4		1,575	176		1,751	2,025
Polyurethane pointed		4	4		1,275	176		1,451	1,675
4'-6" x 10'-0", clear anodized		2	8		2,475	355		2,830	3,275
Bronze anodized		2	8		3,175	355		3,530	4,025
Polyurethane pointed		2	8		2,650	355		3,005	3,475
Wall downspout, 10 L.F., clear anodized	1 Corp	7	1.143		154	50.50		204.50	248
Bronze anodized		7	1.143		269	50.50		319.50	375
Polyurethane pointed		7	1.143		231	50.50		281.50	330
Corport, baked vinyl finish, .032", 20' x 10', no foundations, min.	K-2	4	6	Cor	3,850	270	66	4,186	4,775
Maximum		2	12	"	7,000	540	132	7,672	8,775
Walkway cover, to 12' wide, stl., vinyl finish, .032", no fndtns., min.		250	.096	S.F.	22.50	4.32	1.06	27.88	33.50
Maximum		200	.120	"	24.50	5.40	1.32	31.22	38

74 Manufactured Exterior Specialties

74.23 – Cupolas

74.23.10 Wood Cupolas

WOOD CUPOLAS									
Stock units, pine, painted, 18" sq., 28" high, alum. roof	1 Corp	4.10	1.951	Eq.	167	86		253	315
Copper roof		3.80	2.105		233	93		326	400
23" square, 33" high, aluminum roof		3.70	2.162		385	95.50		480.50	570
Copper roof		3.30	2.424		480	107		587	695
30" square, 37" high, aluminum roof		3.70	2.162		510	95.50		605.50	710
Copper roof		3.30	2.424		610	107		717	835
Hexagonal, 31" wide, 46" high, copper roof		4	2		755	88		843	965
36" wide, 50" high, copper roof	▼	3.50	2.286		1,375	101		1,476	1,675
For deluxe stock units, add to above					25%				
For custom built units, add to above					50%	50%			

74.29 – Steeple

74.29.10 Prefabricated Steeple

PREFABRICATED STEEPLES									
Steeple, translucent fiberglass, 30" square, 15' high	F-3	2	20	Eq.	6,700	895	305	7,900	9,075
25' high		1.80	22.222		7,825	995	340	9,160	10,500
Opaque fiberglass, 24" square, 14' high		2	20		5,575	895	305	6,775	7,850
28' high	▼	1.80	22.222		5,450	995	340	6,785	7,900
Aluminum, baked finish, 16" square, 14' high					4,850			4,850	5,325
20' high, 3'-6" base					8,125			8,125	8,950
35' high, 8' base					31,400			31,400	34,500
60' high, 14' base					67,000			67,000	73,500
152' high, custom					553,000			553,000	608,500
Porcelain enamel steeples, custom, 40' high	F-3	.50	80		14,100	3,575	1,225	18,900	22,500
60' high	"	.30	133	▼	24,500	5,975	2,050	32,525	38,400

74.46 – Window Wells

74.46.10 Area Window Wells

AREA WINDOW WELLS, Galvanized steel									
20 ga., 3'-2" wide, 1' deep	1 Sww	29	.276	Eq.	14.45	13.60		28.05	40.50
2' deep	▼	23	.348	▼	24	17.15		41.15	56.50

10 74 Manufactured Exterior Specialties

10 74 46 – Window Wells

10 74 46.10 Area Window Wells		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
0300	16 ga., 3'-2" wide, 1' deep	1 Sswk	29	.276	Ea.	19.85	13.60		33.45
0400	3' deep		23	.348		37	17.15		54.15
0600	Welded grating for above, 15 lb., painted		45	.178		85	8.75		93.75
0700	Galvanized		45	.178		116	8.75		124.75
0900	Translucent plastic cap for above	▼	60	.133	▼	19	6.60		25.60

10 75 Flagpoles

10 75 16 – Ground-Set Flagpoles

10 75 16.10 Flagpoles

0010	FLAGPOLES, ground set								
0050	Not including base or foundation								
0100	Aluminum, tapered, ground set 20' high	K-1	2	8	Ea.	880	315	132	1,327
0200	25' high		1.70	9.412		1,275	370	156	1,801
0300	30' high		1.50	10.667		1,250	420	176	1,846
0400	35' high		1.40	11.429		1,650	450	189	2,289
0500	40' high		1.20	13.333		2,350	525	220	3,095
0600	50' high		1	16		2,850	630	264	3,744
0700	60' high		.90	17.778		5,050	695	294	6,039
0800	70' high		.80	20		7,650	785	330	8,765
1100	Counterbalanced, internal halyard, 20' high		1.80	8.889		2,350	350	147	2,847
1200	30' high		1.50	10.667		2,600	420	176	3,196
1300	40' high		1.30	12.308		5,675	485	203	6,363
1400	50' high		1	16		7,900	630	264	8,794
2820	Aluminum, electronically operated, 30' high		1.40	11.429		4,375	450	189	5,014
2840	35' high		1.30	12.308		4,725	485	203	5,413
2860	39' high		1.10	14.545		5,150	570	240	5,960
2880	45' high		1	16		6,575	630	264	7,469
2900	50' high		.90	17.778		7,000	695	294	7,989
3000	Fiberglass, tapered, ground set, 23' high		2	8		695	315	132	1,142
3100	29'-7" high		1.50	10.667		1,425	420	176	2,021
3200	36'-1" high		1.40	11.429		1,975	450	189	2,614
3300	39'-5" high		1.20	13.333		2,225	525	220	2,970
3400	49'-2" high		1	16		3,975	630	264	4,869
3500	59' high	▼	.90	17.778	▼	4,800	695	294	5,789
4300	Steel, direct imbedded installation								
4400	Internal halyard, 20' high	K-1	2.50	6.400	Ea.	1,175	251	106	1,532
4500	25' high		2.50	6.400		1,775	251	106	2,132
4600	30' high		2.30	6.957		2,125	273	115	2,513
4700	40' high		2.10	7.619		2,675	299	126	3,100
4800	50' high		1.90	8.421		3,500	330	139	3,969
5000	60' high		1.80	8.889		6,250	350	147	6,747
5100	70' high		1.60	10		6,800	390	165	7,355
5200	80' high		1.40	11.429		8,750	450	189	9,389
5300	90' high		1.20	13.333		15,000	525	220	15,745
5500	100' high	▼	1	16	▼	15,500	630	264	16,394
6400	Wood poles, tapered, clear vertical grain fir with tilting								
6410	base, not incl. foundation, 4" butt, 25' high	K-1	1.90	8.421	Ea.	1,375	330	139	1,844
6800	6" butt, 30' high	"	1.30	12.308	"	2,250	485	203	2,938
7300	Foundations for flagpoles, including								
7400	excavation and concrete, to 35' high poles	C-1	10	3.200	Ea.	650	134		784
7600	40' to 50' high	▼	3.50	9.143	▼	1,200	385		1,585

75 Flagpoles

5 16 – Ground-Set Flagpoles

16.10 Flagpoles	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Over 60' high	C-1	2	16	Ea.	1,500	670		2,170	2,675

5 23 – Wall-Mounted Flagpoles

23.10 Flagpoles

FLAGPOLES, structure mounted									
Fiberglass, vertical wall set, 19'-8" long	K-1	1.50	10.667	Ea.	1,300	420	176	1,896	2,250
23' long		1.40	11.429		1,375	450	189	2,014	2,400
26'-3" long		1.30	12.308		1,775	485	203	2,463	2,925
19'-8" long outrigger		1.30	12.308		1,225	485	203	1,913	2,325
Aluminum, vertical wall set, tapered, with base, 20' high		1.20	13.333		975	525	220	1,720	2,125
29'-6" high		1	16		2,250	630	264	3,144	3,725
Outrigger poles with base, 12' long		1.30	12.308		930	485	203	1,618	2,000
14' long	▼	1	16	▼	1,425	630	264	2,319	2,825

81 Pest Control Devices

3 13 – Bird Control Devices

1 13.10 Bird Control Netting

BIRD CONTROL NETTING									
1/8" square mesh	4 Clob	4000	.008	S.F.	.54	.28		.82	1.02
1/4" square mesh		4000	.008		.75	.28		1.03	1.26
1/2" square mesh		4000	.008		.11	.28		.39	.55
5/8" x 3/4" mesh		4000	.008		.07	.28		.35	.51
1-1/4" x 1-1/2" mesh		4000	.008		.13	.28		.41	.57
4" square mesh	▼	4000	.008	▼	.11	.28		.39	.55
Poly clips				Ea.	.02			.02	.02

88 Scales

8 05 – Commercial Scales

8 05.10 Scales

SCALES									
Truck scales, incl. steel weigh bridge, not including foundation, pits									
Digital, electronic, 100 ton capacity, steel deck 12' x 10' platform	3 Corp	.20	120	Ea.	12,800	5,300		18,100	22,300
40' x 10' platform	▼	.14	171		26,100	7,550		33,650	40,300
60' x 10' platform		.13	184		32,300	8,150		40,450	48,000
70' x 10' platform	▼	.12	200		36,100	8,825		44,925	53,500
For standard automatic printing device, odd					2,600			2,600	2,850
For remote reading electronic system, odd					2,350			2,350	2,575
Concrete foundation pits for above, 8' x 6', 5 C.Y. required	C-1	.50	64		980	2,675		3,655	5,200
14' x 6' platform, 10 C.Y. required		.35	91.429		1,450	3,825		5,275	7,450
50' x 10' platform, 30 C.Y. required		.25	128		1,925	5,350		7,275	10,400
70' x 10' platform, 40 C.Y. required	▼	.15	213		4,250	8,925		13,175	18,400
Crane scales, dial, 1 ton capacity					1,050			1,050	1,150
5 ton capacity					1,450			1,450	1,600
Digital, 1 ton capacity					1,800			1,800	1,975
10 ton capacity				▼	4,625			4,625	5,100
Low profile electronic warehouse scale, not incl. printer, 4' x 4' platform, 10,000 lb. capacity	2 Corp	.30	53.333	Ea.	1,725	2,350		4,075	5,500
5' x 7' platform, 10,000 lb. capacity		.25	64		4,250	2,825		7,075	9,025
20,000 lb. capacity	▼	.20	80	▼	5,475	3,525		9,000	11,500

10 88 Scales

10 88 05 – Commercial Scales

10 88 05.10 Scales		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. G&P
							Labor	Equipment		
3500	For printers, incl. time, date & numbering, add				Ea.	1,350			1,350	1.5
3800	Portable, beam type, capacity 1000#, platform 18" x 24"					770			770	1.0
3900	Dial type, capacity 2000#, platform 24" x 24"					1,375			1,375	1.5
4000	Digital type, capacity 1000#, platform 24" x 30"					2,175			2,175	2.0
4100	Portable contractor truck scales, 50 ton cap., 40' x 10' platform					33,000			33,000	34.0
4200	60' x 10' platform					30,400			30,400	33.0

Estimating Tips

General

Items in this division are usually priced per square foot each. Many of these items are purchased by the owner for installation by the contractor. Check the specifications for responsibilities and include time for receiving, storage, installation, and mechanical and electrical hookups in the appropriate divisions.

- Many items in Division 11 require some type of support system that is not usually furnished with the item. Examples of these systems include blocking for the attachment of casework and support angles for ceiling-hung projection screens. The required blocking or supports must be added to the estimate in the appropriate division.
- Some items in Division 11 may require assembly or electrical hookups. Verify the amount of assembly required or the need for a hard electrical connection and add the appropriate costs.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

Division 11 - Equipment

11 05 Common Work Results for Equipment

11 05 05 – Selective Equipment Demolition

11 05 05.10 Selective Demolition		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Per Ind
SELECTIVE DEMOLITION							Labor	Equipment		
0010	SELECTIVE DEMOLITION									
0130	Central vacuum, motor unit, residential or commercial	1 Clab	2	4	Ea.		140		140	
0210	Vault door and frame	2 Skwk	2	8			365		365	
0215	Day gate, for vault	"	3	5.333			242		242	
0380	Bank equipment, teller window, bullet resistant	1 Clab	1.20	6.667	▼		234		234	
0381	Counter	2 Clab	1.50	10.667	Station		375		375	
0382	Drive-up window, including drawer and glass		1.50	10.667	"		375		375	
0383	Thru-wall boxes and chests, selective demolition		2.50	6.400	Ea.		225		225	
0384	Bullet resistant partitions	▼	20	.800	L.F.		28		28	
0385	Pneumatic tube system, 2 lane drive-up	L-3	.45	35.556	Ea.		1,700		1,700	
0386	Safety deposit box	1 Clab	50	.160	Opng.		5.60		5.60	
0387	Surveillance system, video, complete	2 Elec	2	8	Ea.		410		410	
0410	Church equipment, misc moveable fixtures	2 Clab	1	16			560		560	
0412	Steeple, to 28' high	F-3	3	13.333			600	204	804	
0414	40' to 60' high	"	.80	50	▼		2,250	765	3,015	
0510	Library equipment, bookshelves, wood, to 90" high	1 Clab	20	.400	L.F.		14.05		14.05	
0515	Carrels, hardwood, 36" x 24"	"	9	.889	Ea.		31		31	
0630	Stage equipment, light control panel	1 Elec	1	8	"		410		410	
0632	Border lights		40	.200	L.F.		10.30		10.30	
0634	Spatlights	▼	8	1	Ea.		51.50		51.50	
0636	Telescoping platforms and risers	2 Clab	175	.091	SF Strg.		3.21		3.21	
1020	Barber equipment, hydraulic chair	1 Clab	40	.200	Ea.		7		7	
1030	Checkout counter, supermarket or warehouse conveyer	2 Clab	18	.889			31		31	
1040	Food cases, refrigerated or frozen	Q-5	6	2.667			134		134	
1190	Laundry equipment, commercial	L-6	3	4			214		214	
1360	Movie equipment, lamphouse, to 4000 watt, incl rectifier	1 Elec	4	2			103		103	
1365	Sound system, incl amplifier	"	1.25	6.400			330		330	
1410	Air compressor, to 5 H.P.	2 Clab	2.50	6.400	▼		225		225	
1412	Lubrication equipment, automotive, 3 reel type, incl pump, excl piping	L-4	1	24	Set		995		995	
1414	Baath, spray paint, complete, to 26' long	"	.80	30	"		1,250		1,250	
1560	Parking equipment, cashier baath	B-22	2	15	Ea.		615	99.50	714.50	
1600	Loading dock equipment, dock bumpers, rubber	1 Clab	50	.160	"		5.60		5.60	
1610	Door seal for door perimeter	"	50	.160	L.F.		5.60		5.60	
1620	Platform lifter, fixed, 6' x 8', 5000 lb. capacity	E-16	1.50	10.667	Ea.		535	81	616	
1630	Dock leveller	"	2	8			405	61	466	
1640	Lights, single or double arm	1 Elec	8	1			51.50		51.50	
1650	Shelter, fabric, truck or train	1 Clab	1.50	5.333			187		187	
1790	Waste handling equipment, commercial compactor	L-4	2	12			495		495	
1792	Commercial or municipal incinerator, gas	"	2	12			495		495	
1795	Crematory, excluding building	Q-3	.25	128			6,650		6,650	
1910	Detection equipment, cell bar front	E-4	4	8			400	30.50	430.50	
1912	Cell door and frame		8	4			199	15.20	214.20	
1914	Prefab cell, 4' to 5' wide, 7' to 8' high, 7' deep		8	4			199	15.20	214.20	
1916	Cell, bolted, single		40	.800			40	3.04	43.04	
1918	Visitor cubicle	▼	4	8			400	30.50	430.50	
2850	Hydraulic gates, canal, flap, knife, slide or sluice, to 18" diameter	L-5A	8	4			198	70.50	268.50	
2852	19" to 36" diameter		6	5.333			264	94	358	
2854	37" to 48" diameter		2	16			790	283	1,073	
2856	49" to 60" diameter		1	32			1,575	565	2,140	
2858	Over 60" diameter	▼	.30	106			5,275	1,875	7,150	
3100	Sewage pumping system, prefabricated, to 1000 GPM	C-17D	.20	420			19,300	3,875	23,175	
3110	Sewage treatment, holding tank for recirc chemical water closet	1 Plum	8	1			54.50		54.50	
3900	Wastewater treatment system, to 1500 gallons	B-21	2	14	▼		565	66	631	

05 Common Work Results for Equipment

05 05 – Selective Equipment Demolition

05.10 Selective Demolition	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
Food storage equipment, walk-in refrigerator/freezer	2 Clob	64	.250	S.F.		8.80		8.80	13.50
Shelving, stainless steel, 4 tier or dunnage rack	1 Clob	12	.667	Eq.		23.50		23.50	36
Food preparation equipment, small countertop		18	.444			15.60		15.60	24
Food delivery carts, heated cabinets		18	.444			15.60		15.60	24
Cooking equipment, commercial range	Q-1	12	1.333			65.50		65.50	99
Hood and ventilation equipment, kitchen exhaust hood, excl fire prot	1 Clob	3	2.667			93.50		93.50	144
Fire protection system	Q-1	3	5.333			262		262	395
Food dispensing equipment, countertop items	1 Clob	15	.533			18.70		18.70	29
Serving counter	"	65	.123	L.F.		4.32		4.32	6.65
Ice machine, ice cube maker, flakers and storage bins, to 2000 lb./day	Q-1	1.60	10	Eq.		490		490	740
Cleaning and disposal, commercial dishwasher, to 50 racks per hour	L-6	1	12			645		645	965
To 275 racks per hour	L-4	1	24			995		995	1,525
Dishwasher hood	2 Clob	5	3.200			112		112	173
Garbage disposal, commercial, to 5 H.P.	L-1	8	2			106		106	159
Water heater, residential, to 80 gal/day	"	5	3.200			170		170	255
Water softener, automatic	2 Plum	10	1.600			87.50		87.50	132
Disappearing stairway, to 15' floor height	2 Clob	6	2.667			93.50		93.50	144
Darkroom equipment, light	L-7	10	2.800			119		119	183
Heavy	"	1.50	18.667			795		795	1,225
Doors	2 Clob	3.50	4.571	Opng.		160		160	247
Bowling alley, complete, incl pinsetter, scorer, counters, misc supplies	4 Clob	.40	80	Lone		2,800		2,800	4,325
Health club equipment, circuit training apparatus	2 Clob	2	8	Set		281		281	430
Squat racks	"	10	1.600	Eq.		56		56	86.50
School equipment, basketball backstop	L-2	2	8			310		310	475
Table and benches, folding, in wall, 14' long	L-4	4	6			248		248	385
Bleachers, telescoping, to 30 tier	F-5	120	.267	Seat		11.90		11.90	18.30
Boxing ring, elevated	L-4	.20	120	Eq.		4,975		4,975	7,675
Boxing ring, floor level	"	2	12			495		495	765
Exercise equipment	1 Clob	6	1.333			47		47	72
Gym divider	L-4	1000	.024	S.F.		.99		.99	1.53
Scoreboard	R-3	2	10	Eq.		510	66	576	840
Shooting range, incl bullet traps, targets, excl structure	L-9	1	36	Point		1,450		1,450	2,325
Vocational shop equipment	2 Clob	8	2	Eq.		70		70	108
Fume hood, incl countertop, excl HVAC	"	6	2.667	L.F.		93.50		93.50	144
Medical sterilizing, distiller, water, steam heated, 50 gal. capacity	1 Plum	2.80	2.857	Eq.		156		156	235
Medical equipment, surgery table, minor	1 Clob	1	8			281		281	430
Surgical lights, doctors office, single or double arm	2 Elec	3	5.333			275		275	410
Physical therapy, table	2 Clob	4	4			140		140	216
Whirlpool bath, fixed, incl mixing valves	1 Plum	4	2			109		109	165
Dental equipment, chair, electric or hydraulic	1 Clob	.75	10.667			375		375	575
Central suction system	1 Plum	2	4			218		218	330
Drill console with accessories	1 Clob	3.20	2.500			88		88	135
X-ray unit	"	4	2			70		70	108
X-ray developer	1 Plum	10	.800			43.50		43.50	66

05 10 – Equipment Installation

05 10.10 Industrial Equipment Installation

INDUSTRIAL EQUIPMENT INSTALLATION									
Industrial equipment, minimum	E-2	12	4.667	Ton		225	125	350	520
Maximum	"	2	28	"		1,350	750	2,100	3,150

11 11 Vehicle Service Equipment

11 11 13 – Compressed-Air Vehicle Service Equipment

11 11 13.10 Compressed Air Equipment		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. Tax
COMPRESSED AIR EQUIPMENT							Labor	Equipment		
0010	COMPRESSED AIR EQUIPMENT									
0030	Compressors, electric, 1-1/2 H.P., standard controls	L-4	1.50	16	Ea.	420	660		1,080	1.4
0550	Dual controls		1.50	16		765	660		1,425	1.8
0600	5 H.P., 115/230 volt, standard controls		1	24		2,025	995		3,020	3.7
0650	Dual controls	▼	1	24	▼	2,575	995		3,570	4.3

11 11 19 – Vehicle Lubrication Equipment

11 11 19.10 Lubrication Equipment

0010	LUBRICATION EQUIPMENT									
3000	Lube equipment, 3 reel type, with pumps, not including piping	L-4	.50	48	Set	8,700	1,975		10,675	12.6

11 11 33 – Vehicle Spray Painting Equipment

11 11 33.10 Spray Painting Equipment

0010	SPRAY PAINTING EQUIPMENT									
4000	Spray painting booth, 26' long, complete	L-4	.40	60	Ea.	17,600	2,475		20,075	23.7

11 12 Parking Control Equipment

11 12 13 – Parking Key and Card Control Units

11 12 13.10 Parking Control Units

0010	PARKING CONTROL UNITS									
5100	Card reader	1 Elec	2	4	Ea.	1,900	206		2,106	2.4
5120	Proximity with customer display	2 Elec	1	16		5,500	825		6,325	7.2
6000	Parking control software, minimum	1 Elec	.50	16		23,600	825		24,425	27.1
6020	Maximum	"	.20	40	▼	103,000	2,050		105,050	114.3

11 12 16 – Parking Ticket Dispensers

11 12 16.10 Ticket Dispensers

0010	TICKET DISPENSERS									
5900	Ticket splitter with time/date stamp, standard	2 Elec	2	8	Ea.	6,400	410		6,810	7.7
5920	Mag stripe encoding	"	2	8	"	18,600	410		19,010	21.1

11 12 26 – Parking Fee Collection Equipment

11 12 26.13 Parking Fee Coin Collection Equipment

0010	PARKING FEE COIN COLLECTION EQUIPMENT									
5200	Cashier booth, average	B-22	1	30	Ea.	10,100	1,225	199	11,524	13.2
5300	Collector station, pay on foot	2 Elec	.20	80		109,500	4,125		113,625	126.3
5320	Credit card only	"	.50	32	▼	20,200	1,650		21,850	24.1

11 12 26.23 Fee Equipment

0010	FEE EQUIPMENT									
5600	Fee computer	1 Elec	1.50	5.333	Ea.	13,900	275		14,175	15.1

11 12 33 – Parking Gates

11 12 33.13 Parking Gate Equipment

0010	PARKING GATE EQUIPMENT									
5000	Barrier gate with programmable controller	2 Elec	3	5.333	Ea.	3,525	275		3,800	4.1
5020	Industrial		3	5.333		4,875	275		5,150	5.5
5500	Exit verifier	▼	1	16		17,400	825		18,225	20.1
5700	Full sign, 4" letters	1 Elec	2	4		1,225	206		1,431	1.5
5800	Inductive loop	2 Elec	4	4		169	206		375	0.4
5950	Vehicle detector, microprocessor based	1 Elec	3	2.667	▼	405	137		542	0.6

13 Loading Dock Equipment

3 13 - Loading Dock Bumpers

13.10 Dock Bumpers	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
DOCK BUMPERS Bolts not included									
2" x 6" to 4" x 8", overage	1 Corp	.30	26.667	M.B.F.	1,325	1,175		2,500	3,275
Bumpers, rubber blocks 4-1/2" thick, 10" high, 14" long		26	.308	Eo.	51	13.55		64.55	77
24" long		22	.364		95	16.05		111.05	129
36" long		17	.471		104	21		125	147
12" high, 14" long		25	.320		100	14.10		114.10	132
24" long		20	.400		111	17.65		128.65	149
36" long		15	.533		123	23.50		146.50	172
Rubber blocks 6" thick, 10" high, 14" long		22	.364		102	16.05		118.05	138
24" long		18	.444		121	19.60		140.60	163
36" long		13	.615		173	27		200	232
20" high, 11" long		13	.615		147	27		174	203
Extruded rubber bumpers, T section, 22" x 22" x 3" thick		41	.195		61	8.60		69.60	80.50
Molded rubber bumpers, 24" x 12" x 3" thick		20	.400		52.50	17.65		70.15	84.50
Welded installation of above bumpers	E-14	8	1		3.74	51.50	15.20	70.44	113
For drilled anchors, add per anchor	1 Corp	36	.222		6.70	9.80		16.50	22.50
Steel bumpers, see Section 10 26 13.10									

3 16 - Loading Dock Seals and Shelters

3 16.10 Dock Seals and Shelters

DOCK SEALS AND SHELTERS									
Door seal for door perimeter, 12" x 12", vinyl covered	1 Corp	26	.308	L.F.	31.50	13.55		45.05	55.50
Folding gates, see Section 10 22 16.10									
Shelters, fabric, for truck or train, scissor arms, minimum	1 Corp	1	8	Eo.	1,650	355		2,005	2,375
Maximum	"	.50	16	"	2,200	705		2,905	3,475

3 19 - Stationary Loading Dock Equipment

3 19.10 Dock Equipment

DOCK EQUIPMENT									
Dock boards, heavy duty, 60" x 60", aluminum, 5,000 lb. capacity				Eo.	1,250			1,250	1,375
9,000 lb. capacity					1,325			1,325	1,450
15,000 lb. capacity					1,575			1,575	1,750
Platform lifter, 6' x 6', portable, 3,000 lb. capacity					9,150			9,150	10,100
4,000 lb. capacity					11,300			11,300	12,400
Fixed, 6' x 8', 5,000 lb. capacity	E-16	.70	22.857		9,850	1,150	174	11,174	13,000
Levelers, hinged for trucks, 10 ton capacity, 6' x 8'		1.08	14.815		4,975	745	113	5,833	6,925
7' x 8'		1.08	14.815		5,750	745	113	6,608	7,800
Air bag power operated, 10 ton cap., 6' x 8'		1.08	14.815		5,775	745	113	6,633	7,800
7' x 8'		1.08	14.815		5,800	745	113	6,658	7,825
Hydraulic, 10 ton capacity, 6' x 8'		1.08	14.815		8,650	745	113	9,508	11,000
7' x 8'		1.08	14.815		9,325	745	113	10,183	11,600
Loading dock safety restraints, manual style		1.08	14.815		3,175	745	113	4,033	4,925
Automatic style		1.08	14.815		5,325	745	113	6,183	7,300

3 26 - Loading Dock Lights

3 26.10 Dock Lights

DOCK LIGHTS									
Lights for loading docks, single arm, 24" long	1 Elec	3.80	2.105	Eo.	137	109		246	315
Double arm, 60" long	"	3.80	2.105	"	194	109		303	375

11 14 Pedestrian Control Equipment

11 14 13 – Pedestrian Gates

11 14 13.13 Portable Posts and Railings		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	To Incl
0010	PORTABLE POSTS AND RAILINGS									
0020	Portable for pedestrian traffic control, standard, minimum				Ea.	131			131	
0100	Maximum					186			186	
0300	Deluxe posts, minimum					207			207	
0400	Maximum				▼	420			420	
0600	Ropes for above posts, plastic covered, 1-1/2" diameter				L.F.	17.95			17.95	
0700	Chain care				"	11.75			11.75	
1500	Portable security or safety barrier, black with 7' yellow strap				Ea.	215			215	
1510	12' yellow strap					250			250	
1550	Sign holder, standard design				▼	70			70	

11 14 13.19 Turnstiles

0010	TURNSTILES									
0020	One way, 4 arm, 46" diameter, economy, manual	2 Corp	5	3.200	Ea.	1,525	141		1,666	1.9
0100	Electric		1.20	13.333		1,750	590		2,340	2.8
0300	High security, galv., 5'-5" diameter, 7' high, manual		1	16		6,100	705		6,805	7.8
0350	Electric		.60	26.667		6,900	1,175		8,075	9.3
0420	Three arm, 24" opening, light duty, manual		2	8		2,600	355		2,955	3.4
0450	Heavy duty		1.50	10.667		4,700	470		5,170	5.9
0460	Manual, with registering & controls, light duty		2	8		3,275	355		3,630	4.1
0470	Heavy duty		1.50	10.667		3,950	470		4,420	5.0
0480	Electric, heavy duty	▼	1.10	14.545		4,575	640		5,215	6.0
0500	For coin or token operating, add				▼	730			730	8
1200	One way gate with horizontal bars, 5'-5" diameter									
1300	7' high, recreation or transit type	2 Corp	.80	20	Ea.	5,300	880		6,180	7.1
1500	For electronic counter, add				"	180			180	1

11 16 Vault Equipment

11 16 16 – Safes

11 16 16.10 Commercial Safes

0010	COMMERCIAL SAFES									
0200	Office, 1 hr. rating, 30" x 18" x 18"				Ea.	2,125			2,125	
0250	40" x 18" x 18"					4,025			4,025	
0300	60" x 36" x 18", double door					7,750			7,750	
0600	Data, 1 hr. rating, 27" x 19" x 16"					6,325			6,325	
0700	63" x 34" x 16"					13,400			13,400	
0750	Diskette, 1 hr., 14" x 12" x 11", inside					4,025			4,025	
0800	Money, "B" label, 9" x 14" x 14"					525			525	
0900	Tool resistive, 24" x 24" x 20"					3,875			3,875	
1050	Tool and torch resistive, 24" x 24" x 20"					7,050			7,050	
1150	Jewelers, 23" x 20" x 18"					8,350			8,350	
1200	63" x 25" x 18"					14,200			14,200	
1300	For handling into building, add, minimum	A-2	8.50	2.824			98.50	25	123.50	
1400	Maximum	"	.78	30.769	▼		1,075	270	1,345	

17 Teller and Service Equipment

17 13 – Teller Equipment Systems

17 13.10 Bank Equipment

BANK EQUIPMENT

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Alarm system, police	2 Elec	1.60	10	Ea.	4,675	515		5,190	5,925
With vault alarm	"	.40	40		18,600	2,050		20,650	23,500
Bullet resistant teller window, 44" x 60"	1 Glaz	.60	13.333		3,600	570		4,170	4,825
48" x 60"	"	.60	13.333		4,775	570		5,345	6,150
Counters for banks, frontal only	2 Carp	1	16	Station	1,750	705		2,455	3,000
Complete with steel undercounter	"	.50	32	"	3,400	1,400		4,800	5,925
Door and frame, bullet-resistant, with vision panel, minimum	2 Sswk	1.10	14.545	Ea.	5,500	720		6,220	7,325
Maximum		1.10	14.545		7,475	720		8,195	9,475
Drive-up window, drawer & mike, not incl. glass, minimum		1	16		5,900	790		6,690	7,900
Maximum		.50	32		8,875	1,575		10,450	12,600
Night depository, with chest, minimum		1	16		7,250	790		8,040	9,375
Maximum		.50	32		10,300	1,575		11,875	14,100
Package receiver, painted		3.20	5		1,300	247		1,547	1,875
Stainless steel		3.20	5		2,225	247		2,472	2,875
Partitions, bullet-resistant, 1-3/16" glass, 8' high	2 Carp	10	1.600	L.F.	189	70.50		259.50	315
Acrylic	"	10	1.600	"	360	70.50		430.50	505
Pneumatic tube systems, 2 lane drive-up, complete	L-3	.25	64	Total	24,600	3,075		27,675	31,800
With T.V. viewer	"	.20	80	"	47,600	3,850		51,450	58,500
Safety deposit boxes, minimum	1 Sswk	44	.182	Opng.	54.50	8.95		63.45	76
Maximum, 10" x 15" opening		19	.421		116	21		137	164
Teller locker, average		15	.533		1,500	26.50		1,526.50	1,700
Pass thru, bullet-res. window, painted steel, 24" x 36"	2 Sswk	1.60	10	Ea.	2,450	495		2,945	3,575
48" x 48"		1.20	13.333		2,550	660		3,210	3,975
72" x 40"		.80	20		3,825	985		4,810	6,000
For stainless steel frames, add					20%				
Surveillance system, video camera, complete	2 Elec	1	16	Ea.	9,925	825		10,750	12,100
For each additional camera, add				"	945			945	1,050
CCTV system, see Section 27 41 19.10									
Twenty-four hour teller, single unit, automated deposit, cash and memo	L-3	.25	64	Ea.	42,800	3,075		45,875	51,500
Vault front, see Section 08 34 59.10									

19 Detention Equipment

19 30 – Detention Cell Equipment

19 30.10 Cell Equipment

CELL EQUIPMENT

Toilet apparatus including wash basin, average	L-8	1.50	13.333	Ea.	3,350	615		3,965	4,650
--	-----	------	--------	-----	-------	-----	--	-------	-------

21 Mercantile and Service Equipment

21 13 – Cash Registers and Checking Equipment

21 13.10 Checkout Counter

CHECKOUT COUNTER

Supermarket conveyor, single belt	2 Clab	10	1.600	Ea.	2,975	56		3,031	3,350
Double belt, power take-away		9	1.778		4,300	62.50		4,362.50	4,825
Double belt, power take-away, incl. side scanning		7	2.286		5,050	80		5,130	5,675
Warehouse or bulk type		6	2.667		5,975	93.50		6,068.50	6,725
Scanning system, 2 lanes, w/registers, scan gun & memory				System	15,600			15,600	17,200
10 lanes, single processor, full scan, with scales				"	148,500			148,500	163,500

11 21 Mercantile and Service Equipment

11 21 13 – Cash Registers and Checking Equipment

11 21 13.10 Checkout Counter		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Unit
							Labor	Equipment		
2000	Register, restaurant, minimum				Co.	695			695	
2100	Maximum					2,925			2,925	
2150	Store, minimum					695			695	
2200	Maximum					2,925			2,925	

11 21 53 – Barber and Beauty Shop Equipment

11 21 53.10 Barber Equipment

0010	BARBER EQUIPMENT									
0020	Chair, hydraulic, movable, minimum	1 Corp	24	.333	Co.	465	14.70		479.70	
0050	Maximum	"	16	.500		2,975	22		2,997	
0200	Wall hung styling station with mirrors, minimum	L-2	8	2		395	77.50		472.50	
0300	Maximum	"	4	4		1,975	155		2,130	
0500	Sink, hair washing basin, rough plumbing not incl.	1 Plum	8	1		425	54.50		479.50	
1000	Sterilizer, liquid solution for tools					138			138	
1100	Total equipment, rule of thumb, per chair, minimum	L-8	1	20		1,725	925		2,650	
1150	Maximum	"	1	20		4,400	925		5,325	

11 23 Commercial Laundry and Dry Cleaning Equipment

11 23 13 – Dry Cleaning Equipment

11 23 13.13 Dry Cleaners

0010	DRY CLEANERS Not incl. rough-in									
2000	Dry cleaners, electric, 20 lb. capacity	L-1	.20	80	Co.	33,300	4,250		37,550	
2050	25 lb. capacity		.17	94.118		46,500	5,000		51,500	
2100	30 lb. capacity		.15	106		49,000	5,650		54,650	
2150	60 lb. capacity		.09	177		78,000	9,425		87,425	

11 23 16 – Drying and Conditioning Equipment

11 23 16.13 Dryers

0010	DRYERS , Not including rough-in									
1500	Industrial, 30 lb. capacity	1 Plum	2	4	Co.	3,025	218		3,243	
1600	50 lb. capacity	"	1.70	4,706		3,250	257		3,507	
4700	Lint collector, ductwork not included, 8,000 to 10,000 CFM	Q-10	.30	80		8,800	3,900		12,700	

11 23 19 – Finishing Equipment

11 23 19.13 Folders and Spreaders

0010	FOLDERS AND SPREADERS									
3500	Folders, blankets & sheets, minimum	1 Elec	.17	47.059	Co.	31,600	2,425		34,025	
3700	King size with automatic stocker		.10	80		57,000	4,125		61,125	
3800	Far conveyer delivery, odd		.45	17.778		13,500	915		14,415	
4900	Spreader feeders, 240V, 2 station	L-6	.70	17.143		54,500	920		55,420	
4920	4 station	"	.35	34.286		66,000	1,825		67,825	

11 23 23 – Commercial Ironing Equipment

11 23 23.13 Irons and Pressers

0010	IRONS AND PRESSERS									
4500	Ironers, institutional, 110", single roll	1 Elec	.20	40	Co.	30,700	2,050		32,750	
4800	Pressers, low capacity air operated	L-6	1.75	6.857		9,325	365		9,690	
4820	Hand operated		1.75	6.857		8,625	365		8,990	
4840	Ironer 48", 240V		3.50	3.429		113,500	184		113,684	
6600	Hand operated presser		.70	17.143		6,100	920		7,020	
6620	Mushroom press 115 V		.70	17.143		7,600	920		8,520	

23 Commercial Laundry and Dry Cleaning Equipment

23 26 – Commercial Washers and Extractors

26.13 Washers and Extractors	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
WASHERS AND EXTRACTORS , not including rough-in									
Combination washer/extractor, 20 lb. capacity	L-6	1.50	8	Ea.	5,700	430		6,130	6,925
30 lb. capacity		.80	15		8,975	805		9,780	11,100
50 lb. capacity		.68	17.647		10,500	945		11,445	13,000
75 lb. capacity		.30	40		19,900	2,150		22,050	25,100
125 lb. capacity		.16	75		27,300	4,025		31,325	36,200
Washer extractor/dryer, 110 lb., 240V		1	12		8,775	645		9,420	10,600
Washer extractor, 135 lb., 240V		1	12		25,000	645		25,645	28,500
Pass through		1	12		69,000	645		69,645	77,000
200 lb. washer extractor		1	12		71,000	645		71,645	79,000
Pass through		1	12		74,500	645		75,145	83,000
Extractor, low capacity	▼	1.75	6.857	▼	7,275	365		7,640	8,550

23 33 – Coin-Operated Laundry Equipment

33.13 Coin Operated Washers and Dryers

COIN OPERATED WASHERS AND DRYERS									
Dryer, gas fired									
Commercial, 30 lb. capacity, coin operated, single	1 Plum	3	2.667	Ea.	3,150	146		3,296	3,700
Double stacked	"	2	4		6,825	218		7,043	7,825
Coin dry cleaner 20 lb.	L-6	1.75	6.857	▼	28,500	365		28,865	31,900
Clothes washer									
Commercial, coin operated, average	1 Plum	3	2.667	Ea.	1,250	146		1,396	1,600

24 Maintenance Equipment

24 19 – Vacuum Cleaning Systems

24 19.10 Vacuum Cleaning

VACUUM CLEANING									
Central, 3 inlet, residential	1 Skwk	.90	8.889	Total	1,025	405		1,430	1,775
Commercial		.70	11.429		1,225	520		1,745	2,150
5 inlet system, residential		.50	16		1,450	725		2,175	2,725
7 inlet system, commercial		.40	20		1,675	910		2,585	3,250
9 inlet system, residential	▼	.30	26.667		3,600	1,200		4,800	5,825
Rule of thumb: First 1200 S.F., installed				▼				1,425	1,575
For each additional S.F., add				S.F.					.26

26 Unit Kitchens

26 13 – Metal Unit Kitchens

26 13.10 Commercial Unit Kitchens

COMMERCIAL UNIT KITCHENS									
Combination range, refrigerator and sink, 30" wide, minimum	L-1	2	8	Ea.	1,125	425		1,550	1,875
Maximum		1	16		3,875	850		4,725	5,525
60" wide, average		1.40	11.429		3,375	605		3,980	4,625
72" wide, average		1.20	13.333		4,400	710		5,110	5,925
Office model, 48" wide		2	8		2,725	425		3,150	3,650
Refrigerator and sink only	▼	2.40	6.667	▼	2,850	355		3,205	3,650
Combination range, refrigerator, sink, microwave									
Oven and ice maker	L-1	.80	20	Ea.	4,675	1,050		5,725	6,725

11 27 Photographic Processing Equipment

11 27 13 – Darkroom Processing Equipment

11 27 13.10 Darkroom Equipment		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
0010	DARKROOM EQUIPMENT								
0020	Developing sink, 5" deep, 24" x 48"	Q-1	2	8	Ea.	5,625	395		6,020
0050	48" x 52"		1.70	9.412		5,675	465		6,140
0200	10" deep, 24" x 48"		1.70	9.412		7,775	465		8,240
0250	24" x 108"	▼	1.50	10.667		10,200	525		10,725
0500	Dryers, dehumidified filtered air, 36" x 25" x 68" high	L-7	6	4.667		5,075	199		5,274
0550	48" x 25" x 68" high		5	5.600		10,000	239		10,239
2000	Processors, automatic, color print, minimum		4	7		15,700	298		15,998
2050	Maximum		.60	46.667		24,700	2,000		26,700
2300	Black and white print, minimum		2	14		11,900	595		12,495
2350	Maximum		.80	35		61,500	1,500		63,000
2600	Manual processor, 16" x 20" maximum print size		2	14		9,450	595		10,045
2650	20" x 24" maximum print size		1	28		8,975	1,200		10,175
3000	Viewing lights, 20" x 24"		6	4.667		380	199		579
3100	20" x 24" with color correction	▼	6	4.667		535	199		734
3500	Washers, round, minimum sheet 11" x 14"	Q-1	2	8		3,400	395		3,795
3550	Maximum sheet 20" x 24"		1	16		3,475	785		4,260
3800	Square, minimum sheet 20" x 24"		1	16		3,125	785		3,910
3900	Maximum sheet 50" x 56"	▼	.80	20	▼	4,850	985		5,835
4500	Combination tank sink, tray sink, washers, with								
4510	Dry side tables, average	Q-1	.45	35.556	Ea.	10,600	1,750		12,350

11 31 Residential Appliances

11 31 13 – Residential Kitchen Appliances

11 31 13.13 Cooking Equipment

0010	COOKING EQUIPMENT								
0020	Cooking range, 30" free standing, 1 oven, minimum	2 Clob	10	1.600	Ea.	405	56		461
0050	Maximum		4	4		1,775	140		1,915
0150	2 oven, minimum		10	1.600		1,100	56		1,156
0200	Maximum	▼	10	1.600		1,175	56		1,231
0350	Built-in, 30" wide, 1 oven, minimum	1 Elec	6	1.333		650	68.50		718.50
0400	Maximum	2 Carp	2	8		1,250	355		1,605
0500	2 oven, conventional, minimum		4	4		1,350	176		1,526
0550	1 conventional, 1 microwave, maximum	▼	2	8		1,850	355		2,205
0700	Free-standing, 1 oven, 21" wide range, minimum	2 Clob	10	1.600		365	56		421
0750	21" wide, maximum	"	4	4		360	140		500
0900	Countertop cooktops, 4 burner, standard, minimum	1 Elec	6	1.333		275	68.50		343.50
0950	Maximum		3	2.667		1,100	137		1,237
1050	As above, but with grill and griddle attachment, minimum		6	1.333		1,050	68.50		1,118.50
1100	Maximum		3	2.667		3,325	137		3,462
1200	Induction cooktop, 30" wide		3	2.667		1,100	137		1,237
1250	Microwave oven, minimum		4	2		110	103		213
1300	Maximum	▼	2	4	▼	420	206		626

11 31 13.23 Refrigeration Equipment

0010	REFRIGERATION EQUIPMENT								
2000	Deep freeze, 15 to 23 C.F., minimum	2 Clob	10	1.600	Ea.	575	56		631
2050	Maximum		5	3.200		745	112		857
2200	30 C.F., minimum		8	2		840	70		910
2250	Maximum	▼	3	5.333		890	187		1,077
5200	Icemaker, automatic, 20 lb. per day	1 Plum	7	1.143		920	62.50		982.50
5350	51 lb. per day	"	2	4	▼	1,350	218		1,568

31 Residential Appliances

113 - Residential Kitchen Appliances

13.23 Refrigeration Equipment	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Refrigerator, no frost, 10 C.F. to 12 C.F., minimum	2 Clab	10	1.600	Ea.	425	56		481	555
Maximum		6	2.667		510	93.50		603.50	705
14 C.F. to 16 C.F., minimum		9	1.778		515	62.50		577.50	660
Maximum		5	3.200		735	112		847	985
18 C.F. to 20 C.F., minimum		8	2		650	70		720	825
Maximum		4	4		1,400	140		1,540	1,775
21 C.F. to 29 C.F., minimum		7	2.286		955	80		1,035	1,175
Maximum		3	5.333		3,175	187		3,362	3,775
Energystar qualified, 18 C.F., minimum	G 2 Corp	4	4		450	176		626	765
Maximum	G	2	8		1,150	355		1,505	1,800
21.7 C.F., minimum	G	4	4		955	176		1,131	1,325
Maximum	G	4	4		1,875	176		2,051	2,350

13.33 Kitchen Cleaning Equipment

KITCHEN CLEANING EQUIPMENT	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Dishwasher, built-in, 2 cycles, minimum	L-1	4	4	Ea.	212	212		424	555
Maximum		2	8		400	425		825	1,075
4 or more cycles, minimum		4	4		325	212		537	680
Average		4	4		435	212		647	795
Maximum		2	8		1,100	425		1,525	1,875
Energystar qualified, minimum	G	4	4		355	212		567	710
Maximum	G	2	8		1,300	425		1,725	2,075

13.43 Waste Disposal Equipment

WASTE DISPOSAL EQUIPMENT	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Compactor, residential size, 4 to 1 compaction, minimum	1 Corp	5	1.600	Ea.	580	70.50		650.50	745
Maximum	"	3	2.667		860	118		978	1,125
Garbage disposal, sink type, minimum	L-1	10	1.600		83	85		168	219
Maximum	"	10	1.600		197	85		282	345

13.53 Kitchen Ventilation Equipment

KITCHEN VENTILATION EQUIPMENT	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Hood for range, 2 speed, vented, 30" wide, minimum	L-3	5	3.200	Ea.	57.50	154		211.50	297
Maximum		3	5.333		750	256		1,006	1,225
42" wide, minimum		5	3.200		181	154		335	435
Custom		5	3.200		1,650	154		1,804	2,025
Maximum		3	5.333		2,000	256		2,256	2,600
For ventless hood, 2 speed, add					17.90			17.90	19.70
For vented 1 speed, deduct from maximum					47.50			47.50	52.50

3123 - Residential Laundry Appliances

123.13 Washers

WASHERS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Residential, 4 cycle, average	1 Plum	3	2.667	Ea.	850	146		996	1,150
Washing machine, automatic, minimum		3	2.667		415	146		561	675
Maximum		1	8		1,500	435		1,935	2,300
Energy star qualified, front loading, minimum	G	3	2.667		550	146		696	830
Maximum	G	1	8		1,425	435		1,860	2,225
Top loading, minimum	G	3	2.667		370	146		516	630
Maximum	G	3	2.667		1,825	146		1,971	2,225

123.23 Dryers

DRYERS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Gas fired residential, 16 lb. capacity, average	1 Plum	3	2.667	Ea.	645	146		791	930
Electric, front loading, energy-star qualified, minimum	G	3	5.333		395	206		601	750
Maximum	G	2	8		1,700	310		2,010	2,350

11 31 Residential Appliances

11 31 23 – Residential Laundry Appliances

11 31 23.23 Dryers		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
		1 Carp	10	.800	Ea.	41	Labor	Equipment	76.50
7450	Vent kits for dryers								

11 31 33 – Miscellaneous Residential Appliances

11 31 33.13 Sump Pumps

0010	SUMP PUMPS								
6400	Cellar drainer, pedestal, 1/3 H.P., molded PVC base	1 Plum	3	2.667	Ea.	128	146		274
6450	Solid brass	"	2	4	"	272	218		490
6460	Sump pump, see also Section 22 14 29.16								

11 31 33.23 Water Heaters

0010	WATER HEATERS								
6900	Electric, glass lined, 30 gallon, minimum	L-1	5	3.200	Ea.	520	170		690
6950	Maximum		3	5.333		720	283		1,003
7100	80 gallon, minimum		2	8		935	425		1,360
7150	Maximum		1	16		1,300	850		2,150
7180	Gas, glass lined, 30 gallon, minimum	2 Plum	5	3.200		805	175		980
7220	Maximum		3	5.333		1,125	291		1,416
7260	50 gallon, minimum		2.50	6.400		845	350		1,195
7300	Maximum		1.50	10.667		1,175	580		1,755
7310	Water heater, see also Section 22 33 30.13								

11 31 33.43 Air Quality

0010	AIR QUALITY								
2450	Dehumidifier, portable, automatic, 15 pint				Ea.	162			162
2550	40 pint					212			212
3550	Heater, electric, built-in, 1250 watt, ceiling type, minimum	1 Elec	4	2		102	103		205
3600	Maximum		3	2.667		166	137		303
3700	Wall type, minimum		4	2		164	103		267
3750	Maximum		3	2.667		176	137		313
3900	1500 watt wall type, with blower		4	2		164	103		267
3950	3000 watt		3	2.667		335	137		472
4850	Humidifier, portable, 8 gallons per day					173			173
5000	15 gallons per day					208			208

11 33 Retractable Stairs

11 33 10 – Disappearing Stairs

11 33 10.10 Disappearing Stairway

0010	DISAPPEARING STAIRWAY No trim included								
0100	Custom grade, pine, 8'-6" ceiling, minimum	1 Carp	4	2	Ea.	155	88		243
0150	Average		3.50	2.286		239	101		340
0200	Maximum		3	2.667		310	118		428
0500	Heavy duty, pivoted, from 7'-7" to 12'-10" floor to floor		3	2.667		735	118		853
0600	16'-0" ceiling		2	4		1,500	176		1,676
0800	Economy folding, pine, 8'-6" ceiling		4	2		132	88		220
0900	9'-6" ceiling		4	2		155	88		243
1100	Automatic electric, aluminum, floor to floor height, 8' to 9'	2 Carp	1	16		8,575	705		9,280
1400	11' to 12'		.90	17.778		9,275	785		10,060
1700	14' to 15'		.70	22.857		9,875	1,000		10,875

41 Foodservice Storage Equipment

113 - Refrigerated Food Storage Cases

13.10 Refrigerated Food Cases

REFRIGERATED FOOD CASES

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	2012 Bare Costs Equipment	Total	Total Incl O&P
Dairy, multi-deck, 12' lang	Q-5	3	5.333	Ea.	11,200	267		11,467	12,700
Far rear sliding doors, add					1,725			1,725	1,900
Delicatessen case, service deli, 12' lang, single deck	Q-5	3.90	4.103		6,575	206		6,781	7,550
Multi-deck, 18 S.F. shelf display		3	5.333		6,225	267		6,492	7,250
Freezer, self-contained, chest-type, 30 C.F.		3.90	4.103		7,425	206		7,631	8,475
Glass door, upright, 78 C.F.		3.30	4.848		11,900	243		12,143	13,500
Frozen food, chest type, 12' lang		3.30	4.848		7,975	243		8,218	9,150
Glass door, reach-in, 5 door		3	5.333		13,900	267		14,167	15,700
Island case, 12' lang, single deck		3.30	4.848		7,200	243		7,443	8,300
Multi-deck		3	5.333		8,400	267		8,667	9,650
Meat case, 12' lang, single deck		3.30	4.848		6,000	243		6,243	6,975
Multi-deck		3.10	5.161		10,300	259		10,559	11,700
Produce, 12' lang, single deck		3.30	4.848		6,775	243		7,018	7,825
Multi-deck		3.10	5.161		8,625	259		8,884	9,875

13.20 Refrigerated Food Storage Equipment

REFRIGERATED FOOD STORAGE EQUIPMENT

Cooler, reach-in, beverage, 6' lang	Q-1	6	2.667	Ea.	3,625	131		3,756	4,175
Freezers, reach-in, 44 C.F.		4	4		2,625	197		2,822	3,200
68 C.F.		3	5.333		4,550	262		4,812	5,425
Freezer, prefab, 8' x 8' w/refrigeration	2 Corp	.45	35.556		11,000	1,575		12,575	14,500
8' x 12'		.35	45.714		11,800	2,025		13,825	16,000
8' x 16'		.25	64		16,600	2,825		19,425	22,600
8' x 20'		.17	94.118		19,900	4,150		24,050	28,300
Reach-in, 1 compartment	Q-1	4	4		2,275	197		2,472	2,800
Energy star rated	G R-18	7.80	3.333		2,325	135		2,460	2,750
2 compartment	Q-1	3	5.333		3,650	262		3,912	4,400
Energy star rated	G R-18	6.20	4.194		3,250	169		3,419	3,825
3 compartment	Q-1	3	5.333		4,825	262		5,087	5,725
Energy star rated	G R-18	5.60	4.643		4,025	187		4,212	4,700
Refrigerator, reach-in, 1 compartment		7.80	3.333		2,175	135		2,310	2,575
Energy star rated	G	7.80	3.333		2,325	135		2,460	2,750
2 compartment		6.20	4.194		3,450	169		3,619	4,025
Energy star rated	G	6.20	4.194		3,250	169		3,419	3,825
3 compartment		5.60	4.643		4,275	187		4,462	4,975
Energy star rated	G	5.60	4.643		4,025	187		4,212	4,700
Prefab, with refrigeration, 8' x 8'	2 Corp	.45	35.556		6,575	1,575		8,150	9,625
8' x 12'		.35	45.714		7,025	2,025		9,050	10,900
8' x 16'		.25	64		11,800	2,825		14,625	17,400
8' x 20'		.17	94.118		14,900	4,150		19,050	22,800
Pass-thru/roll-in, 1 compartment	R-18	7.80	3.333		4,300	135		4,435	4,950
2 compartment		6.24	4.167		6,075	168		6,243	6,950
3 compartment		5.60	4.643		8,375	187		8,562	9,475
Walk-in, alum, door & floor only, no refig, 6' x 6' x 7'-6"	2 Corp	1.40	11.429		9,175	505		9,680	10,900
10' x 6' x 7'-6"		.55	29.091		13,100	1,275		14,375	16,400
12' x 14' x 7'-6"		.25	64		18,400	2,825		21,225	24,600
12' x 20' x 7'-6"		.17	94.118		22,400	4,150		26,550	31,100
Refrigerated cabinets, mobile					3,725			3,725	4,075
Refrigerator/freezer, reach-in, 1 compartment	R-18	5.60	4.643		5,050	187		5,237	5,850
2 compartment	"	4.80	5.417		7,125	219		7,344	8,150

11 41 Foodservice Storage Equipment

11 41 13 – Refrigerated Food Storage Cases

11 41 13.30 Wine Cellar		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. Tax
							Labor	Equipment		
0010	WINE CELLAR , refrigerated, Redwood interior, carpeted, walk-in type									
0020	6'-8" high, including racks									
0200	80" W x 48" D for 900 bottles	2 Corp	1.50	10.667	Eo.	3,275	470		3,745	4.3
0250	80" W x 72" D for 1300 bottles		1.33	12.030		4,125	530		4,655	5.3
0300	80" W x 94" D for 1900 bottles		1.17	13.675		4,900	605		5,505	6.3
0400	80" W x 124" D for 2500 bottles	▼	1	16	▼	6,000	705		6,705	7.6
0600	Portable cabinets, red oak, reach-in temp. & humidity controlled									
0650	26-5/8"W x 26-1/2"D x 68"H for 235 bottles				Eo.	3,450			3,450	3.8
0660	32"W x 21-1/2"D x 73-1/2"H for 144 bottles					2,450			2,450	2.8
0670	32"W x 29-1/2"D x 73-1/2"H for 288 bottles					2,925			2,925	3.3
0680	39-1/2"W x 29-1/2"D x 86-1/2"H for 440 bottles					4,100			4,100	4.3
0690	52-1/2"W x 29-1/2"D x 73-1/2"H for 468 bottles					4,025			4,025	4.4
0700	52-1/2"W x 29-1/2"D x 86-1/2"H for 572 bottles				▼	4,625			4,625	5.2
0730	Portable, red oak, can be built-in with glass door									
0750	23-7/8"W x 24"D x 34-1/2"H for 50 bottles				Eo.	990			990	1.1

11 41 33 – Foodservice Shelving

11 41 33.20 Metal Food Storage Shelving

0010	METAL FOOD STORAGE SHELVING									
8600	Stainless steel shelving, louvered 4-tier, 20" x 3'	1 Clob	6	1.333	Eo.	1,300	47		1,347	1.3
8605	20" x 4'		6	1.333		1,875	47		1,922	2.1
8610	20" x 6'		6	1.333		2,725	47		2,772	3.1
8615	24" x 3'		6	1.333		1,725	47		1,772	1.9
8620	24" x 4'		6	1.333		2,000	47		2,047	2.1
8625	24" x 6'		6	1.333		2,900	47		2,947	3.1
8630	Flot 4-tier, 20" x 3'		6	1.333		1,175	47		1,222	1.2
8635	20" x 4'		6	1.333		1,425	47		1,472	1.5
8640	20" x 5'		6	1.333		1,650	47		1,697	1.7
8645	24" x 3'		6	1.333		1,325	47		1,372	1.4
8650	24" x 4'		6	1.333		2,200	47		2,247	2.3
8655	24" x 6'		6	1.333		2,625	47		2,672	2.7
8700	Galvanized shelving, louvered 4-tier, 20" x 3'		6	1.333		670	47		717	0.7
8705	20" x 4'		6	1.333		745	47		792	0.8
8710	20" x 6'		6	1.333		915	47		962	1.0
8715	24" x 3'		6	1.333		580	47		627	0.6
8720	24" x 4'		6	1.333		805	47		852	0.9
8725	24" x 6'		6	1.333		1,150	47		1,197	1.2
8730	Flot 4-tier, 20" x 3'		6	1.333		595	47		642	0.6
8735	20" x 4'		6	1.333		655	47		702	0.7
8740	20" x 6'		6	1.333		940	47		987	1.0
8745	24" x 3'		6	1.333		660	47		707	0.7
8750	24" x 4'		6	1.333		670	47		717	0.7
8755	24" x 6'		6	1.333		980	47		1,027	1.1
8760	Stainless steel dunnage rack, 24" x 3'		8	1		330	35		365	0.4
8765	24" x 4'		8	1		420	35		455	0.5
8770	Galvanized dunnage rack, 24" x 3'		8	1		178	35		213	0.2
8775	24" x 4'	▼	8	1	▼	198	35		233	0.2

42 Food Preparation Equipment

2 10 – Commercial Food Preparation Equipment

10.10 Choppers, Mixers and Misc. Equipment

CHOPPERS, MIXERS AND MISC. EQUIPMENT

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	2012 Bare Costs Equipment	Total	Total Incl O&P
Choppers, 5 pounds	R-18	7	3.714	↓	1,950	150		2,100	2,375
16 pounds		5	5.200		2,300	210		2,510	2,875
35 to 40 pounds		4	6.500		3,425	262		3,687	4,175
Coffee brewer, 5 burners	1 Plum	3	2.667		1,275	146		1,421	1,625
Coffee urn, twin 6 gallon urns		2	4		2,375	218		2,593	2,950
Single, 3 gallon		3	2.667		1,725	146		1,871	2,125
Fast food equipment, total pockage, minimum	6 Skwk	.08	600		201,000	27,200		228,200	263,500
Maximum	"	.07	685		274,000	31,100		305,100	349,500
Food mixers, bench type, 20 quarts	L-7	7	4		2,475	170		2,645	2,975
40 quarts		5.40	5.185		6,425	221		6,646	7,425
60 quarts		5	5.600		10,600	239		10,839	12,100
80 quarts		3.90	7.179		11,600	305		11,905	13,300
130 quarts		2.20	12.727		16,700	540		17,240	19,200
Floor type, 20 quarts		15	1.867		3,075	79.50		3,154.50	3,500
60 quarts		14	2		9,475	85		9,560	10,500
80 quarts		12	2.333		11,200	99.50		11,299.50	12,600
140 quarts		8.60	3.256		18,600	139		18,739	20,600
Peelers, small	R-18	8	3.250		1,650	131		1,781	2,025
Large	"	6	4.333		4,975	175		5,150	5,750
Pulper/extractor, close coupled, 5 HP	1 Plum	1.90	4.211		3,650	230		3,880	4,375
Slicer with table	R-18	9	2.889	↓	5,075	117		5,192	5,750

43 Food Delivery Carts and Conveyors

3 13 – Food Delivery Carts

3 13.10 Mobile Carts, Racks and Trays

MOBILE CARTS, RACKS AND TRAYS

Cabinet, heated, 1 compartment, reach-in	R-18	5.60	4.643	↓	3,850	187		4,037	4,500
Pass-thru roll-in		5.60	4.643		5,200	187		5,387	6,000
2 compartment, reach-in		4.80	5.417		8,275	219		8,494	9,425
Mobile					2,875			2,875	3,175
Mobile rack w/pon slide					1,350			1,350	1,475
Troy and silver dispenser, mobile	1 Clob	16	.500	↓	890	17.55		907.55	1,000

44 Food Cooking Equipment

4 13 – Commercial Ranges

4 13.10 Cooking Equipment

COOKING EQUIPMENT

Bake oven, gas, one section	Q-1	8	2	↓	4,800	98.50		4,898.50	5,425
Two sections		7	2.286		9,175	112		9,287	10,300
Three sections		6	2.667		14,900	131		15,031	16,600
Electric convection, single deck	L-7	4	7		6,425	298		6,723	7,525
Broiler, without oven, stonord	Q-1	8	2		3,500	98.50		3,598.50	4,000
Infrared	L-7	4	7		9,350	298		9,648	10,800
Fryer, with twin baskets, modular model	Q-1	7	2.286		1,125	112		1,237	1,400
Floor model, on 6" legs	"	5	3.200		2,125	157		2,282	2,575
Extra single basket, large					97			97	107
Energy star rated, 50 lb. capacity	G R-18	4	6.500		4,100	262		4,362	4,900
85 lb. capacity	G "	4	6.500	↓	6,775	262		7,037	7,850

11 44 Food Cooking Equipment

11 44 13 – Commercial Ranges

11 44 13.10 Cooking Equipment		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Inc
							Labor	Equipment		
5300	Griddle, SS, 24" plate, w/4" legs, elec, 208 V, 3 phase, 3' long	Q-1	7	2.286	Eq.	1,250	112		1,362	
5550	4' long	"	6	2.667		2,200	131		2,331	
6200	Iced tea brewer	1 Plum	3.44	2.326		710	127		837	
6350	Kettle, w/steam jacket, tilting, w/positive lock, SS, 20 gallons	L-7	7	4		7,375	170		7,545	
6600	60 gallons	"	6	4.667		10,400	199		10,599	
6900	Range, restaurant type, 6 burners and 1 standard oven, 36" wide	Q-1	7	2.286		2,875	112		2,987	
6950	Convection		7	2.286		4,400	112		4,512	
7150	2 standard ovens, 24" griddle, 60" wide		6	2.667		3,775	131		3,906	
7200	1 standard, 1 convection oven		6	2.667		8,800	131		8,931	
7450	Heavy duty, single 34" standard oven, open top		5	3.200		4,650	157		4,807	
7500	Convection oven		5	3.200		4,750	157		4,907	
7700	Griddle top		6	2.667		2,600	131		2,731	
7750	Convection oven	▼	6	2.667		7,375	131		7,506	
8850	Steamer, electric 27 KW	L-7	7	4		8,500	170		8,670	
9100	Electric, 10 KW or gas 100,000 BTU	"	5	5.600		6,250	239		6,489	
9150	Toaster, conveyor type, 16-22 slices per minute					990			990	
9160	Pap-up, 2 slot				▼	610			610	
9200	For deluxe models of above equipment, add					75%				
9400	Rule of thumb: Equipment cost based									
9410	on kitchen work area									
9420	Office buildings, minimum	L-7	77	.364	S.F.	89.50	15.50		105	
9450	Maximum		58	.483		151	20.50		171.50	
9550	Public eating facilities, minimum		77	.364		117	15.50		132.50	
9600	Maximum		46	.609		191	26		217	
9750	Hospitals, minimum		58	.483		121	20.50		141.50	
9800	Maximum	▼	39	.718	▼	222	30.50		252.50	

11 46 Food Dispensing Equipment

11 46 16 – Service Line Equipment

11 46 16.10 Commercial Food Dispensing Equipment

COMMERCIAL FOOD DISPENSING EQUIPMENT		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Inc
							Labor	Equipment		
0010	Butter pot dispenser	1 Clob	13	.615	Eq.	945	21.50		966.50	
1100	Bread dispenser, counter top		13	.615		920	21.50		941.50	
1900	Cup and glass dispenser, drop in		4	2		1,050	70		1,120	
1920	Disposable cup, drop in		16	.500		470	17.55		487.55	
2650	Dish dispenser, drop in, 12"		11	.727		2,275	25.50		2,300.50	
2660	Mobile	▼	10	.800		2,700	28		2,728	
3300	Food warmer, counter, 1.2 KW					510			510	
3550	1.6 KW					2,050			2,050	
3600	Well, hot food, built-in, rectangular, 12" x 20"	R-30	10	2.600		710	108		818	
3610	Circular, 7 qt.		10	2.600		375	108		483	
3620	Refrigerated, 2 compartments		10	2.600		2,875	108		2,983	
3630	3 compartments		9	2.889		3,450	120		3,570	
3640	4 compartments		8	3.250		4,225	135		4,360	
4720	Frost cold plate	▼	9	2.889		18,200	120		18,320	
5700	Hot chocolate dispenser	1 Plum	4	2		1,175	109		1,284	
5750	Ice dispenser 567 pound	Q-1	6	2.667		5,000	131		5,131	
6250	Jet spray dispenser	R-18	4.50	5.778		3,225	233		3,458	
6300	Juice dispenser, concentrate	"	4.50	5.778		2,125	233		2,358	
6690	Milk dispenser, bulk, 2 flavor	R-30	8	3.250		1,700	135		1,835	
6695	3 flavor	"	8	3.250	▼	2,300	135		2,435	

46 Food Dispensing Equipment

6 16 – Service Line Equipment

16.10 Commercial Food Dispensing Equipment	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Serving counter, straight	1 Corp	40	.200	L.F.	840	8.80		848.80	940
Curved section	"	30	.267	"	1,025	11.75		1,036.75	1,150
Solid surface, see Section 12 36 61.16									
Sneeze guard with lights, 60" L	1 Clob	16	.500	Eo.	375	17.55		392.55	435
Soft serve ice cream machine, medium	R-18	11	2.364		11,900	95.50		11,995.50	13,200
Large	"	9	2.889		19,200	117		19,317	21,300

47 Ice Machines

7 10 – Commercial Ice Machines

10.10 Commercial Ice Equipment

COMMERCIAL ICE EQUIPMENT									
Ice cube maker, 50 pounds per day	Q-1	6	2.667	Eo.	1,475	131		1,606	1,825
250 pounds per day		1.20	13.333		2,625	655		3,280	3,875
500 pounds per day		4	4		2,750	197		2,947	3,325
With bin		1.20	13.333		3,100	655		3,755	4,400
1000 pounds per day, with bin		1	16		4,700	785		5,485	6,350
Ice flakers, 300 pounds per day		1.60	10		2,575	490		3,065	3,600
600 pounds per day		.95	16.842		3,750	830		4,580	5,375
1000 pounds per day		.75	21.333		4,325	1,050		5,375	6,325
2000 pounds per day		.65	24.615		21,300	1,200		22,500	25,200
Ice storage bin, 500 pound capacity	Q-5	1	16		975	800		1,775	2,275
1000 pound	"	.56	28.571		2,500	1,425		3,925	4,875

48 Cleaning and Disposal Equipment

8 13 – Commercial Dishwashers

13.10 Dishwashers

DISHWASHERS									
Dishwasher, commercial, rock type									
10 to 12 rocks per hour	Q-1	3.20	5	Eo.	4,300	246		4,546	5,100
Energy star rated, 35 to 40 rocks/hour	G	1.30	12.308		4,725	605		5,330	6,100
50 to 60 rocks/hour	G	1.30	12.308		10,200	605		10,805	12,100
Automatic, 190 to 230 rocks per hour	L-6	.35	34.286		13,500	1,825		15,325	17,600
235 to 275 rocks per hour		.25	48		31,900	2,575		34,475	39,000
8,750 to 12,500 dishes per hour		.10	120		49,500	6,425		55,925	64,000
Dishwasher hood, canopy type	L-3A	10	1.200	L.F.	800	57.50		857.50	970
Pont leg type	"	2.50	4.800	Eo.	8,600	231		8,831	9,825
Garbage disposal 1.5 HP, 100 GPH	L-1	4.80	3.333		2,000	177		2,177	2,475
3 HP, 120 GPH		4.60	3.478		2,100	185		2,285	2,575
5 HP, 250 GPH		4.50	3.556		3,375	189		3,564	4,000
Pot sink, 3 compartment	1 Plum	7.25	1.103	L.F.	1,000	60.50		1,060.50	1,200
Pot washer, low temp wash/rinse		1.60	5	Eo.	3,800	273		4,073	4,600
High pressure wash, high temperature rinse		1.20	6.667		36,500	365		36,865	40,700
Trash compactor, small, up to 125 lb. compacted weight	L-4	4	6		23,900	248		24,148	26,700
Large, up to 175 lb. compacted weight	"	3	8		29,200	330		29,530	32,600

11 52 Audio-Visual Equipment

11 52 13 - Projection Screens

11 52 13.10 Projection Screens, Wall or Ceiling Hung		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Unit
PROJECTION SCREENS, WALL OR CEILING HUNG, matte white										
0010	Manually operated, economy	2 Carp	500	.032	S.F.	5.85	1.41		7.26	
0100	Intermediate		450	.036		6.80	1.57		8.37	
0400	Deluxe		400	.040		9.45	1.76		11.21	
0600	Electric operated, matte white, 25 S.F., economy		5	3.200	Ea.	855	141		996	1.19
0700	Deluxe		4	4		1,775	176		1,951	2.27
0900	50 S.F., economy		3	5.333		750	235		985	1.17
1000	Deluxe		2	8		1,975	355		2,330	2.72
1200	Heavy duty, electric operated, 200 S.F.		1.50	10.667		3,900	470		4,370	5.09
1300	400 S.F.		1	16		4,800	705		5,505	6.42
1500	Rigid acrylic in wall, for rear projection, 1/4" thick	2 Glaz	30	.533	S.F.	47	23		70	
1600	1/2" thick (maximum size 10' x 20')	"	25	.640	"	83.50	27.50		111	1.32

11 52 16 - Projectors

11 52 16.10 Movie Equipment

0010	MOVIE EQUIPMENT									
0020	Changeover, minimum				Ea.	465			465	5.48
0100	Maximum					905			905	10.66
0400	Film transport, incl. plotters and outwind, minimum					5,025			5,025	59.32
0500	Maximum					14,300			14,300	170.70
0800	Lamphouses, incl. rectifiers, xenon, 1,000 watt	1 Elec	2	4		6,650	206		6,856	7.40
0900	1,600 watt		2	4		7,100	206		7,306	8.10
1000	2,000 watt		1.50	5.333		7,625	275		7,900	8.77
1100	4,000 watt		1.50	5.333		9,425	275		9,700	10.80
1400	Lenses, anamorphic, minimum					1,275			1,275	1.48
1500	Maximum					2,875			2,875	3.35
1800	Flat 35 mm, minimum					1,100			1,100	1.27
1900	Maximum					1,725			1,725	1.99
2200	Pedestals, for projectors					1,475			1,475	1.67
2300	Console type					10,700			10,700	11.80
2600	Projector mechanisms, incl. soundhead, 35 mm, minimum					11,100			11,100	12.20
2700	Maximum					15,200			15,200	16.70
3000	Projection screens, rigid, in wall, acrylic, 1/4" thick	2 Glaz	195	.082	S.F.	42	3.51		45.51	5.25
3100	1/2" thick	"	130	.123	"	48.50	5.25		53.75	6.14
3300	Electric operated, heavy duty, 400 S.F.	2 Carp	1	16	Ea.	2,950	705		3,655	4.20
3320	Theater projection screens, matte white, including frames	"	200	.080	S.F.	6.65	3.53		10.18	1.17
3400	Also see Section 11 52 13.10									
3700	Sound systems, incl. amplifier, mono, minimum	1 Elec	.90	8.889	Ea.	3,300	460		3,760	4.30
3800	Dolby/Super Sound, maximum		.40	20		18,100	1,025		19,125	21.50
4100	Dual system, 2 channel, front surround, minimum		.70	11.429		4,625	590		5,215	5.93
4200	Dolby/Super Sound, 4 channel, maximum		.40	20		16,500	1,025		17,525	19.80
4500	Sound heads, 35 mm					5,300			5,300	5.82
4900	Splicer, tape system, minimum					740			740	8.41
5000	Tape type, maximum					1,325			1,325	1.49
5300	Speakers, recessed behind screen, minimum	1 Elec	2	4		1,050	206		1,256	1.41
5400	Maximum	"	1	8		3,100	410		3,510	4.02
5700	Seating, painted steel, upholstered, minimum	2 Carp	35	.457		132	20		152	1.73
5800	Maximum	"	28	.571		420	25		445	5.08
6100	Rewind tables, minimum					2,650			2,650	2.90
6200	Maximum					4,725			4,725	5.37
7000	For automation, varying sophistication, minimum	1 Elec	1	8	System	2,375	410		2,785	3.22
7100	Maximum	2 Elec	.30	53.333	"	5,575	2,750		8,325	10.20

52 Audio-Visual Equipment

2 16 – Projectors

16.20 Movie Equipment- Digital	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
MOVIE EQUIPMENT- DIGITAL									
Digital 2K projection system, 98" DMD	1 Elec	2	4	Ea.	44,000	206		44,206	48,700
OEM lens		2	4		5,375	206		5,581	6,200
Pedestal with power distribution		2	4		2,050	206		2,256	2,550
Software	▼	2	4	▼	1,675	206		1,881	2,150

53 Laboratory Equipment

3 03 – Laboratory Test Equipment

03.13 Test Equipment

TEST EQUIPMENT									
Thermometer, electric, portable				Ea.	450			450	495
Titration unit, four 2000 ml reservoirs				"	5,500			5,500	6,050

3 13 – Laboratory Fume Hoods

13.13 Recirculating Laboratory Fume Hoods

RECIRCULATING LABORATORY FUME HOODS									
Fume hood, with countertop & base, not including HVAC									
Simple, minimum	2 Corp	5.40	2.963	L.F.	620	131		751	880
Complex, including fixtures		2.40	6.667		1,850	294		2,144	2,475
Special, maximum	▼	1.70	9.412	▼	825	415		1,240	1,550
Service fixtures, average				Ea.	295			295	325
Far sink assembly with hot and cold water, add	1 Plum	1.40	5.714		725	310		1,035	1,275
Glove box, fiberglass, bacteriological					16,900			16,900	18,600
Controlled atmosphere					19,400			19,400	21,300
Radioisotope					16,900			16,900	18,600
Carcinogenic				▼	16,900			16,900	18,600

3 13.23 Exhaust Hoods

EXHAUST HOODS									
Ductwork, minimum	2 Shee	1	16	Hood	3,725	835		4,560	5,375
Maximum	"	.50	32	"	5,750	1,675		7,425	8,875

53 16 – Laboratory Incubators

3 16.13 Incubators

INCUBATORS									
Incubators, minimum				Ea.	2,725			2,725	2,975
Maximum				"	14,300			14,300	15,700

53 19 – Laboratory Sterilizers

3 19.13 Sterilizers

STERILIZERS									
Glassware washer, undercounter, minimum	L-1	1.80	8.889	Ea.	6,000	470		6,470	7,300
Maximum	"	1	16	▼	12,200	850		13,050	14,700
Utensil washer-sanitizer	1 Plum	2	4	▼	11,100	218		11,318	12,500

53 23 – Laboratory Refrigerators

3 23.13 Refrigerators

REFRIGERATORS									
Blood bank, 28.6 C.F. emergency signal				Ea.	9,150			9,150	10,100
Reach-in, 16.9 C.F.				"	8,200			8,200	9,000

11 53 Laboratory Equipment

11 53 33 – Emergency Safety Appliances

11 53 33.13 Emergency Equipment		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	To Incl.
							Labor	Equipment		
0010	EMERGENCY EQUIPMENT									
1400	Safety equipment, eye wash, hand held				Ea.	405			405	
1450	Deluge shower				"	740			740	

11 53 43 – Service Fittings and Accessories

11 53 43.13 Fittings

0010	FITTINGS									
1600	Sink, one piece plastic, flask wash, hose, free standing	1 Plum	1.60	5	Ea.	1,850	273		2,123	
1610	Epoxy resin sink, 25" x 16" x 10"	"	2	4	"	204	218		422	
1950	Utility table, acid resistant top with drawers	2 Carp	30	.533	L.F.	151	23.50		174.50	
8000	Alternate pricing method: as percent of lab furniture									
8050	Installation, not incl. plumbing & duct work				% Furn.				20%	
8100	Plumbing, final connections, simple system								9.09%	
8110	Moderately complex system								13.64%	
8120	Complex system								18.18%	
8150	Electrical, simple system								9.09%	
8160	Moderately complex system								18.18%	
8170	Complex system								31.80%	

11 57 Vocational Shop Equipment

11 57 10 – Shop Equipment

11 57 10.10 Vocational School Shop Equipment

0010	VOCATIONAL SCHOOL SHOP EQUIPMENT									
0020	Benches, work, wood, average	2 Carp	5	3.200	Ea.	530	141		671	
0100	Metal, average		5	3.200		490	141		631	
0400	Combination belt & disc sander, 6"		4	4		1,425	176		1,601	
0700	Drill press, floor mounted, 12", 1/2 H.P.	▼	4	4		385	176		561	
0800	Dust collector, not incl. ductwork, 6" diameter	1 Shee	1.10	7.273		4,175	380		4,555	
0810	Dust collector bag, 20" diameter	"	5	1.600		405	83.50		488.50	
1000	Grinders, double wheel, 1/2 H.P.	2 Carp	5	3.200		203	141		344	
1300	Jointer, 4", 3/4 H.P.		4	4		1,275	176		1,451	
1600	Kilns, 16 C.F., to 2000°		4	4		1,500	176		1,676	
1900	Lathe, woodworking, 10", 1/2 H.P.		4	4		830	176		1,006	
2200	Planer, 13" x 6"		4	4		950	176		1,126	
2500	Patent's wheel, motorized		4	4		1,050	176		1,226	
2800	Saws, band, 14", 3/4 H.P.		4	4		860	176		1,036	
3100	Metal cutting band saw, 14"		4	4		2,275	176		2,451	
3400	Radial arm saw, 10", 2 H.P.		4	4		1,300	176		1,476	
3700	Scroll saw, 24"		4	4		590	176		766	
4000	Table saw, 10", 3 H.P.		4	4		2,275	176		2,451	
4300	Welder AC arc, 30 amp capacity	▼	4	4	▼	3,100	176		3,276	

61 Theater and Stage Equipment

1 23 – Folding and Portable Stages

23.10 Portable Stages	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
PORTABLE STAGES									
Flooring, portable oak parquet, 3' x 3' sections				S.F.	13.40			13.40	14.70
Cart to carry 225 S.F. of flooring				Ea.	400			400	440
Stages, portable with steps, folding legs, stack, 8" high				SF Stg.	31			31	34.50
16" high					24.50			24.50	27
32" high					43			43	47
40" high					59.50			59.50	65
Telescoping platforms, extruded alum., straight, minimum	4 Carp	157	.204		33	9		42	50
Maximum		77	.416		46	18.35		64.35	78.50
Pie-shaped, minimum		150	.213		71	9.40		80.40	93
Maximum		70	.457		79.50	20		99.50	119
For 3/4" plywood covered deck, deduct					4.05			4.05	4.46
Band risers, steel frame, plywood deck, minimum	4 Carp	275	.116		30.50	5.15		35.65	41.50
Maximum	"	138	.232		67	10.25		77.25	89.50
Chairs for above, self-storing, minimum	2 Carp	43	.372	Ea.	107	16.40		123.40	144
Maximum	"	40	.400	"	189	17.65		206.65	235

1 33 – Rigging Systems and Controls

33.10 Controls

CONTROLS									
Control boards with dimmers and breakers, minimum	1 Elec	1	8	Ea.	12,300	410		12,710	14,100
Average		.50	16		38,600	825		39,425	43,600
Maximum	▼	.20	40	▼	126,000	2,050		128,050	141,500
Rule of thumb: total stage equipment, minimum	4 Carp	100	.320	SF Stg.	97	14.10		111.10	129
Maximum	"	25	1.280	"	545	56.50		601.50	685

1 43 – Stage Curtains

43.10 Curtains

CURTAINS									
Curtain track, straight, light duty	2 Carp	20	.800	L.F.	27	35.50		62.50	84
Heavy duty		18	.889		61	39		100	128
Curved sections		12	1.333	▼	173	59		232	281
Curtains, velour, medium weight		600	.027	S.F.	7.90	1.18		9.08	10.50
Silica based yarn, inherently fire retardant	▼	50	.320	"	15.20	14.10		29.30	38

62 Musical Equipment

2 16 – Carillons

2 16.10 Bell Tower Equipment

BELL TOWER EQUIPMENT									
Carillon, 4 octave (48 bells), with keyboard				System	937,000			937,000	1,031,000
2 octave (24 bells)					441,000			441,000	485,000
3 to 4 bell peal, minimum					110,500			110,500	121,500
Maximum				▼	661,500			661,500	727,500
Cast bronze bell, average				Ea.	99,000			99,000	109,000
Electronic, digital, minimum					16,500			16,500	18,200
With keyboard, maximum				▼	82,500			82,500	91,000

11 66 Athletic Equipment

11 66 13 - Exercise Equipment

11 66 13.10 Physical Training Equipment		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total
0010	PHYSICAL TRAINING EQUIPMENT									
0020	Abdominal rack, 2 board capacity				Ea.	510			510	
0050	Abdominal board, upholstered					685			685	
0200	Bicycle trainer, minimum					430			430	
0300	Deluxe, electric					4,300			4,300	
0400	Barbell set, chrome plated steel, 25 lb.					249			249	
0420	100 lb.					400			400	
0450	200 lb.					665			665	
0500	Weight plates, cast iron, per lb.				Lb.	5.20			5.20	
0520	Storage rack, 10 station				Ea.	900			900	
0600	Circuit training apparatus, 12 machines minimum	2 Clab	1.25	12.800	Set	28,700	450		29,150	32.20
0700	Average		1	16		35,200	560		35,760	39.60
0800	Maximum		.75	21.333		41,700	750		42,450	47.10
0820	Dumbbell set, cast iron, with rack and 5 pair					615			615	
0900	Squat racks	2 Clab	5	3.200	Ea.	890	112		1,002	1.13
1200	Multi-station gym machine, 5 station					5,000			5,000	5.50
1250	9 station					10,100			10,100	11.10
1280	Rowing machine, hydraulic					1,750			1,750	1.92
1300	Treadmill, manual					1,100			1,100	1.20
1320	Motorized					3,625			3,625	4.00
1340	Electronic					3,700			3,700	4.02
1360	Cardio-testing					4,525			4,525	5.00
1400	Treatment/massage tables, minimum					605			605	.67
1420	Deluxe, with accessories					735			735	.81
4150	Exercise equipment, bicycle trainer					750			750	.82
4180	Chinning bar, adjustable, wall mounted	1 Carp	5	1.600		300	70.50		370.50	.44
4200	Exercise ladder, 16' x 1'-7", suspended	L-2	3	5.333		1,700	206		1,906	2.11
4210	High bar, floor plate attached	1 Carp	4	2		1,250	88		1,338	1.50
4240	Parallel bars, adjustable		4	2		2,250	88		2,338	2.62
4270	Uneven parallel bars, adjustable		4	2		2,950	88		3,038	3.37
4280	Wall mounted, adjustable	L-2	1.50	10.667	Set	820	415		1,235	1.55
4300	Rope, ceiling mounted, 18' long	1 Carp	3.66	2.186	Ea.	286	96.50		382.50	.48
4330	Side horse, vaulting		5	1.600		1,775	70.50		1,845.50	2.05
4360	Treadmill, motorized, deluxe, training type		5	1.600		3,000	70.50		3,070.50	3.40
4390	Weight lifting multi-station, minimum	2 Clab	1	16		450	560		1,010	1.13
4450	Maximum	"	.50	32		14,700	1,125		15,825	17.90

11 66 23 - Gymnasium Equipment

11 66 23.13 Basketball Equipment										
0010	BASKETBALL EQUIPMENT									
1000	Backstops, wall mtd., 6' extended, fixed, minimum	L-2	1	16	Ea.	1,300	620		1,920	2.37
1100	Maximum		1	16		1,925	620		2,545	3.07
1200	Swing up, minimum		1	16		1,500	620		2,120	2.60
1250	Maximum		1	16		6,125	620		6,745	7.70
1300	Portable, manual, heavy duty, spring operated		1.90	8.421		15,200	325		15,525	17.20
1400	Ceiling suspended, stationary, minimum		.78	20.513		3,650	795		4,445	5.25
1450	Fold up, with accessories, maximum		.40	40		6,975	1,550		8,525	10.10
1600	For electrically operated, add	1 Elec	1	8		2,300	410		2,710	3.15
5800	Wall pads, 1-1/2" thick, standard (not fire rated)	2 Carp	640	.025	S.F.	7.30	1.10		8.40	

11 66 23.19 Boxing Ring

0010	BOXING RING									
4100	Elevated, 22' x 22'	L-4	.10	240	Ea.	7,725	9,925		17,650	23.80
4110	For cellular plastic foam padding, add		.10	240		975	9,925		10,900	16.40

66 Athletic Equipment

6 23 – Gymnasium Equipment

23.19 Boxing Ring	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Floor level, including posts and ropes only, 20' x 20'	L-4	.80	30	Ea.	3,750	1,250		5,000	6,050
Canvas, 30' x 30'	↓	5	4.800	↓	1,250	199		1,449	1,675

23.47 Gym Mats

GYM MATS									
2" thick, nautahyde covered				S.F.	3.81			3.81	4.19
Vinyl/nylon covered					6.60			6.60	7.30
Wrestling mats, 1" thick, heavy duty				↓	5.60			5.60	6.15

6 43 – Interior Scoreboards

43.10 Scoreboards

SCOREBOARDS									
Baseball, minimum	R-3	1.30	15.385	Ea.	4,025	785	102	4,912	5,725
Maximum		.05	400		17,700	20,400	2,650	40,750	53,000
Football, minimum		.86	23.256		5,225	1,175	154	6,554	7,700
Maximum		.20	100		15,600	5,100	660	21,360	25,500
Basketball (one side), minimum		2.07	9.662		2,350	495	64	2,909	3,400
Maximum		.30	66.667		3,450	3,400	440	7,290	9,350
Hockey-basketball (four sides), minimum		.25	80		5,550	4,075	530	10,155	12,800
Maximum	↓	.15	133	↓	5,625	6,800	885	13,310	17,300

6 53 – Gymnasium Dividers

53.10 Divider Curtains

DIVIDER CURTAINS									
Gym divider curtain, mesh top, vinyl bottom, manual	L-4	500	.048	S.F.	9.15	1.99		11.14	13.15
Electric roll up	L-7	400	.070	"	11.15	2.98		14.13	16.80

67 Recreational Equipment

67 13 – Bowling Alley Equipment

7 13.10 Bowling Alleys

BOWLING ALLEYS Including alley, pinsetter, scorer, Counters and misc. supplies, minimum	4 Corp	.20	160	Lane	41,300	7,050		48,350	56,500
Average	↓	.19	168		45,400	7,425		52,825	61,500
Maximum		.18	177		52,000	7,850		59,850	69,500
Combo table ball rack, add					1,150			1,150	1,250
For automatic scorer, add, minimum					8,225			8,225	9,050
Maximum				↓	9,875			9,875	10,900

67 23 – Shooting Range Equipment

7 23.10 Shooting Range

SHOOTING RANGE Incl. bullet traps, target provisions, controls, Separators, ceiling system, etc. Not incl. structural shell									
Commercial	L-9	.64	56.250	Point	19,500	2,250		21,750	25,100
Law enforcement		.28	128		36,000	5,175		41,175	47,900
National Guard armories		.71	50.704		20,500	2,050		22,550	25,900
Reserve training centers		.71	50.704		15,800	2,050		17,850	20,600
Schools and colleges		.32	112		38,600	4,525		43,125	49,800
Major academies	↓	.19	189		45,500	7,625		53,125	62,000
For acoustical treatment, add					10%	10%			
For lighting, add					28%	25%			
For plumbing, add					5%	5%			
For ventilating system, add, minimum					40%	40%			
Add, average				↓	25%	25%			

11 67 Recreational Equipment

11 67 23 - Shooting Range Equipment

11 67 23.10 Shooting Range		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
	Add, maximum				Point	35%	Labor	Equipment	
1300							35%		

11 68 Play Field Equipment and Structures

11 68 13 - Playground Equipment

11 68 13.10 Free-Standing Playground Equipment

0010	FREE-STANDING PLAYGROUND EQUIPMENT See also individual items								
0200	Bike rack, 10' long, permanent	G	B-1	12	2	Eo.	405	71.50	476.50
0400	Horizontal monkey ladder, 14' long, 6' high			4	6		980	215	1,195
0590	Parallel bars, 10' long			4	6		279	215	494
0600	Posts, tether ball set, 2-3/8" O.D.			12	2	▼	355	71.50	426.50
0800	Poles, multiple purpose, 10'-6" long			12	2	Pr.	168	71.50	239.50
1000	Ground socket for movable posts, 2-3/8" post			10	2.400		107	86	193
1100	3-1/2" post			10	2.400	▼	144	86	230
1300	See-saw, spring, steel, 2 units			6	4	Eo.	775	143	918
1400	4 units			4	6		1,375	215	1,590
1500	6 units			3	8		1,750	286	2,036
1700	Shelter, fiberglass golf tee, 3 person			4.60	5.217		3,350	187	3,537
1900	Slides, stainless steel bed, 12' long, 6' high			3	8		3,350	286	3,636
2000	20' long, 10' high			2	12		4,475	430	4,905
2200	Swings, plain seats, 8' high, 4 seats			2	12		1,050	430	1,480
2300	8 seats			1.30	18.462		1,900	660	2,560
2500	12' high, 4 seats			2	12		2,175	430	2,605
2600	8 seats			1.30	18.462		3,750	660	4,410
2800	Whirlers, 8' diameter			3	8		2,900	286	3,186
2900	10' diameter			3	8	▼	6,200	286	6,486

11 68 13.20 Modular Playground

0010	MODULAR PLAYGROUND Basic components								
0100	Deck, square, steel, 48" x 48"		B-1	1	24	Eo.	500	860	1,360
0110	Recycled polyurethane			1	24		500	860	1,360
0120	Triangular, steel, 48" side			1	24	▼	660	860	1,520
0130	Post, steel, 5" square			18	1.333	L.F.	37	47.50	84.50
0140	Aluminum, 2-3/8" square			20	1.200	▼	36.50	43	79.50
0150	5" square			18	1.333	▼	39	47.50	86.50
0160	Roof, square poly, 54" side			18	1.333	Eo.	1,275	47.50	1,322.50
0170	Wheelchair transfer module, for 3' high deck			3	8	"	2,850	286	3,136
0180	Guardrail, pipe, 36" high			60	4.00	L.F.	174	14.30	188.30
0190	Steps, deck-to-deck, 3 - 8" steps			8	3	Eo.	1,050	107	1,157
0200	Activity panel, crawl through panel			2	12		570	430	1,000
0210	Alphabet/spelling panel			2	12		625	430	1,055
0360	With guardrails			3	8		1,650	286	1,936
0370	Crawl tunnel, straight, 56" long			4	6		1,200	215	1,415
0380	90°, 4' long			4	6		1,300	215	1,515
1200	Slide, tunnel, for 56" high deck			8	3		1,800	107	1,907
1210	Straight, poly			8	3		2,425	107	2,532
1220	Stainless steel, 54" high deck			6	4		685	143	828
1230	Curved, poly, 40" high deck			6	4		805	143	948
1240	Spiral slide, 56" - 72" high			5	4.800		3,600	172	3,772
1300	Ladder, vertical, for 24" - 72" high deck			5	4.800		565	172	737
1310	Horizontal, 8' long			5	4.800		675	172	847
1320	Corkscrew climber, 6' high			3	8		1,050	286	1,336
1330	Fire pole for 72" high deck			6	4	▼	600	143	743

68 Play Field Equipment and Structures

13 – Playground Equipment

13.20 Modular Playground

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Bridge, ring climber, 8' long	B-1	4	6	Eo.	1,750	215		1,965	2,250
Suspension	↓	4	6	L.F.	875	215		1,090	1,300

16 – Play Structures

16.10 Handball/Squash Court

HANDBALL/SQUASH COURT, outdoor									
Handball or squash court, outdoor, wood	2 Corp	.50	32	Eo.	4,950	1,400		6,350	7,625
Masonry handball/squash court	D-1	.30	53.333	"	24,000	2,125		26,125	29,600

16.30 Platform/Paddle Tennis Court

PLATFORM/PADDLE TENNIS COURT Complete with lighting, etc.									
Aluminum slot deck with aluminum frame	B-1	.08	300	Court	60,000	10,700		70,700	82,500
Aluminum slot deck with wood frame	C-1	.12	266		54,500	11,200		65,700	77,000
Aluminum deck heater, odd	B-1	1.18	20.339		2,500	730		3,230	3,875
Douglas fir planking with wood frame 2" x 6" x 30'	C-1	.12	266		51,000	11,200		62,200	73,500
Plywood deck with steel frame	↓	.12	266	↓	51,000	11,200		62,200	73,500
Steel slot deck with wood frame	↓	.12	266	↓	36,300	11,200		47,500	57,000

33 – Athletic Field Equipment

33.13 Football Field Equipment

FOOTBALL FIELD EQUIPMENT									
Goal posts, steel, football, double post	B-1	1.50	16	Pr.	3,225	570		3,795	4,400
Deluxe, single post	↓	1.50	16	↓	2,600	570		3,170	3,750
Football, convertible to soccer	↓	1.50	16	↓	2,350	570		2,920	3,475
Soccer, regulation	↓	2	12	↓	1,200	430		1,630	1,975

71 Medical Sterilizing Equipment

110 – Medical Sterilizers & Distillers

110.10 Sterilizers and Distillers

STERILIZERS AND DISTILLERS									
Distiller, water, steam heated, 50 gal. capacity	1 Plum	1.40	5.714	Eo.	19,000	310		19,310	21,400
Sterilizers, floor loading, 26" x 62" x 42", single door, steam					115,000			115,000	126,500
Double door, steam					204,000			204,000	224,000
General purpose, 20" x 20" x 38", single door					13,000			13,000	14,300
Portable, counter top, steam, minimum					3,300			3,300	3,625
Maximum					5,475			5,475	6,025
Portable, counter top, gas, 17" x 15" x 32-1/2"					39,300			39,300	43,200
Manual washer/sterilizer, 16" x 16" x 26"	1 Plum	2	4	↓	54,000	218		54,218	59,500
Steam generators, electric 10 kW to 180 kW, freestanding									
Minimum	1 Elec	3	2.667	Eo.	7,750	137		7,887	8,725
Maximum	"	.70	11.429	↓	28,800	590		29,390	32,600
Bed pan washer-sonitizer	1 Plum	2	4	↓	7,275	218		7,493	8,325

11 72 Examination and Treatment Equipment

11 72 13 – Examination Equipment

11 72 13.13 Examination Equipment		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
0010 EXAMINATION EQUIPMENT							Labor	Equipment	
0300	Blood pressure unit, mercurial, wall				Ea.	162			162
0400	Diagnostic set, wall				↓	735			735
4400	Scale, physician's, with height rod				↓	290			290

11 72 53 – Treatment Equipment

11 72 53.13 Medical Treatment Equipment

0010 MEDICAL TREATMENT EQUIPMENT									
6500	Surgery table, minor minimum	1 Sswk	.70	11.429	Ea.	14,100	565		14,665
6520	Maximum	"	.50	16		26,600	790		27,390
6700	Surgical lights, doctor's office, single arm	2 Elec	2	8		1,250	410		1,660
6750	Dual arm	"	1	16	↓	5,925	825		6,750

11 73 Patient Care Equipment

11 73 10 – Patient Treatment Equipment

11 73 10.10 Treatment Equipment

0010 TREATMENT EQUIPMENT									
0750	Exam room furnishings, average per room				Ea.	6,650			6,650
1800	Heat therapy unit, humidified, 26" x 78" x 28"				"	3,500			3,500
2100	Hubbard tank with accessories, stainless steel,								
2110	125 GPM at 45 psi water pressure				Ea.	26,800			26,800
2150	For electric overhead hoist, add					2,925			2,925
2900	K-Module for heat therapy, 20 oz. capacity, 75°F to 110°F					420			420
3600	Paraffin bath, 126°F, auto controlled					1,100			1,100
3900	Parallel bars for walking training, 12'-0"					1,300			1,300
4600	Station, dietary, medium, with ice					16,500			16,500
4700	Medicine					7,450			7,450
7000	Tables, physical therapy, walk off, electric	2 Carp	3	5.333		3,275	235		3,510
7150	Standard, vinyl top with base cabinets, minimum	↓	3	5.333		1,150	235		1,385
7200	Maximum		2	8		5,550	355		5,905
8400	Whirlpool bath, mobile, sst, 18" x 24" x 60"					4,600			4,600
8450	Fixed, incl. mixing valves	1 Plum	2	4	↓	9,400	218		9,618

11 73 10.20 Bariatric Equipment

0010 BARIATRIC EQUIPMENT									
5000	Patient lift, electric operated, arm style								
5110	400 lb. capacity				Ea.	2,150			2,150
5120	450 lb. capacity					2,975			2,975
5130	600 lb. capacity					3,825			3,825
5140	700 lb. capacity					4,925			4,925
5150	1,000 lb. capacity					9,900			9,900
5200	Overhead, 4-post, 1,000 lb. capacity					15,900			15,900
5300	Overhead, track type, 450 lb. capacity, not including track					3,175			3,175
5500	For fabric sling, add					300			300
5550	For digital scale, add				↓	900			900

74 Dental Equipment

10 – Dental Office Equipment

10.10 Diagnostic and Treatment Equipment	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
DIAGNOSTIC AND TREATMENT EQUIPMENT									
Central suction system, minimum	1 Plum	1.20	6.667	Eo.	1,550	365		1,915	2,250
Maximum	"	.90	8.889		4,250	485		4,735	5,400
Air compressor, minimum	1 Skwk	.80	10		2,775	455		3,230	3,750
Maximum		.50	16		7,350	725		8,075	9,200
Chair, electric or hydraulic, minimum		.50	16		2,300	725		3,025	3,650
Maximum	▼	.25	32		8,125	1,450		9,575	11,200
Doctor's/assistant's stool, minimum					220			220	242
Maximum					665			665	730
Drill console with accessories, minimum	1 Skwk	1.60	5		2,150	227		2,377	2,725
Maximum		1.60	5		5,125	227		5,352	6,000
Light, ceiling mounted, minimum		8	1		1,125	45.50		1,170.50	1,325
Maximum	▼	8	1		1,700	45.50		1,745.50	1,950
Unit light, minimum	2 Skwk	5.33	3.002		620	136		756	890
Maximum		5.33	3.002		1,375	136		1,511	1,700
Track light, minimum		3.20	5		1,500	227		1,727	2,000
Maximum	▼	3.20	5		2,700	227		2,927	3,325
Sterilizers, steam portable, minimum					1,350			1,350	1,500
Maximum					10,400			10,400	11,400
Steam, institutional					3,250			3,250	3,550
Dry heat, electric, portable, 3 trays					1,225			1,225	1,325
Ultra-sonic cleaner, portable, minimum					410			410	450
Maximum (institutional)					1,225			1,225	1,350
X-ray unit, wall, minimum	1 Skwk	4	2		1,825	91		1,916	2,150
Maximum		4	2		3,800	91		3,891	4,325
Panoramic unit	▼	.60	13.333		15,500	605		16,105	18,000
Deluxe, minimum	2 Skwk	1.60	10		11,000	455		11,455	12,900
Maximum	"	1.60	10		42,000	455		42,455	46,900
Developers, X-ray, overage	1 Plum	5.33	1.501		4,950	82		5,032	5,575
Maximum	"	5.33	1.501	▼	8,100	82		8,182	9,025

76 Operating Room Equipment

10 – Operating Room Equipment

10.10 Surgical Equipment									
SURGICAL EQUIPMENT									
Scrub, surgical, stainless steel, single station, minimum	1 Plum	3	2.667	Eo.	4,050	146		4,196	4,675
Maximum					6,825			6,825	7,500
Major surgery table, minimum	1 Sswk	.50	16		32,100	790		32,890	36,700
Maximum	"	.50	16		106,000	790		106,790	118,000
Surgical lights, major operating room, dual head, minimum	2 Elec	1	16		15,100	825		15,925	17,800
Maximum	"	1	16	▼	29,700	825		30,525	33,900

11 77 Radiology Equipment

11 77 10 - Radiology Equipment

11 77 10.10 X-Ray Equipment

		Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total
0010	X-RAY EQUIPMENT								
8700	X-ray, mobile, minimum				Ea.	12,400			12,400
8750	Maximum					77,000			77,000
8900	Stationary, minimum					42,700			42,700
8950	Maximum					222,000			222,000
9150	Developing processors, minimum					11,900			11,900
9200	Maximum				▼	31,200			31,200

11 78 Mortuary Equipment

11 78 13 - Mortuary Refrigerators

11 78 13.10 Mortuary and Autopsy Equipment

0010	MORTUARY AND AUTOPSY EQUIPMENT								
0015	Autopsy table, standard	1 Plum	1	8	Ea.	9,175	435		9,610
0020	Deluxe	"	.60	13.333		15,600	730		16,330
3200	Mortuary refrigerator, end operated, 2 capacity					13,100			13,100
3300	6 capacity				▼	21,000			21,000

11 78 16 - Crematorium Equipment

11 78 16.10 Crematory

0010	CREMATORY								
1500	Crematory, not including building, 1 place	Q-3	.20	160	Ea.	65,000	8,325		73,325
1750	2 place	"	.10	320	"	93,000	16,600		109,600

11 82 Solid Waste Handling Equipment

11 82 19 - Packaged Incinerators

11 82 19.10 Packaged Gas Fired Incinerators

0010	PACKAGED GAS FIRED INCINERATORS								
4400	Incinerator, gas, not incl. chimney, elec. ar pipe, 50#/hr., minimum	Q-3	.80	40	Ea.	11,900	2,075		13,975
4420	Maximum		.70	45.714		38,200	2,375		40,575
4440	200 lb. per hr., minimum (batch type)		.60	53.333		65,500	2,775		68,275
4460	Maximum (with feeder)		.50	64		93,000	3,325		96,325
4480	400 lb. per hr., minimum (batch type)		.30	106		72,500	5,550		78,050
4500	Maximum (with feeder)		.25	128		98,500	6,650		105,150
4520	800 lb. per hr., with feeder, minimum		.20	160		118,500	8,325		126,825
4540	Maximum		.17	188		164,000	9,800		173,800
4560	1,200 lb. per hr., with feeder, minimum		.15	213		159,500	11,100		170,600
4580	Maximum		.11	290		190,500	15,100		205,600
4600	2,000 lb. per hr., with feeder, minimum		.10	320		390,500	16,600		407,100
4620	Maximum		.05	640		534,500	33,300		567,800
4700	For heat recovery system, add, minimum		.25	128		75,500	6,650		82,150
4710	Add, maximum		.11	290		241,000	15,100		256,100
4720	For automatic ash conveyer, add		.50	64	▼	31,600	3,325		34,925
4750	Large municipal incinerators, incl. stack, minimum		.25	128	Ton/day	19,200	6,650		25,850
4850	Maximum	▼	.10	320	"	51,000	16,600		67,600

11 82 26 - Facility Waste Compactors

11 82 26.10 Compactors

0010	COMPACTORS								
0020	Compactors, 115 volt, 250#/hr., chute fed	L-4	1	24	Ea.	11,900	995		12,895
0100	Hand fed	▼	2.40	10	▼	8,725	415		9,140

82 Solid Waste Handling Equipment

26 – Facility Waste Compactors

26.10 Compactors	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Multi-bag, 230 volt, 600#/hr., chute fed	L-4	1	24	Ea.	10,800	995		11,795	13,400
Hand fed		1	24		9,275	995		10,270	11,700
Containerized, hand fed, 2 to 6 C.Y. containers, 250#/hr.		1	24		11,500	995		12,495	14,100
For chute fed, add per floor		1	24		1,325	995		2,320	2,975
Heavy duty industrial compactor, 0.5 C.Y. capacity		1	24		7,750	995		8,745	10,100
1.0 C.Y. capacity		1	24		11,800	995		12,795	14,500
3.0 C.Y. capacity		.50	48		16,100	1,975		18,075	20,800
5.0 C.Y. capacity		.50	48		19,900	1,975		21,875	25,000
Combination shredder/compactor (5,000 lb./hr.)	▼	.50	48		39,500	1,975		41,475	46,500
For handling hazardous waste materials, 55 gallon drum packer, std.					18,300			18,300	20,200
55 gallon drum packer w/HEPA filter					22,900			22,900	25,200
55 gallon drum packer w/charcoal & HEPA filter					30,600			30,600	33,600
All of the above made explosion proof, add					13,900			13,900	15,300
Shredder, municipal use, 35 ton per hour					286,500			286,500	315,000
60 ton per hour					610,000			610,000	671,000
Shredder & baler, 50 ton per day					572,000			572,000	629,500
Shredder, industrial, minimum					22,500			22,500	24,800
Maximum					121,000			121,000	133,000
Baler, industrial, minimum					9,025			9,025	9,925
Maximum				▼	527,500			527,500	580,000
Transfer station compactor, with power unit and pedestal, not including pit, 50 ton per hour				Ea.	180,500			180,500	198,500

91 Religious Equipment

13 – Baptisteries

13.10 Baptistry

BAPTISTRY									
Fiberglass, 3'-6" deep, x 13'-7" long, steps at both ends, incl. plumbing, minimum	L-8	1	20	Ea.	4,600	925		5,525	6,475
Maximum	"	.70	28.571	▼	7,500	1,325		8,825	10,300
Add for filter, heater and lights					1,650			1,650	1,800

23 – Sanctuary Equipment

23.10 Sanctuary Furnishings

SANCTUARY FURNISHINGS									
Altar, wood, custom design, plain	1 Carp	1.40	5.714	Ea.	2,150	252		2,402	2,775
Deluxe	"	.20	40		10,400	1,775		12,175	14,100
Granite or marble, average	2 Marb	.50	32		12,300	1,325		13,625	15,500
Deluxe	"	.20	80		35,100	3,300		38,400	43,600
Arks, prefabricated, plain	2 Carp	.80	20		9,000	880		9,880	11,300
Deluxe, maximum	"	.20	80		128,000	3,525		131,525	146,500
Reconciliation room, wood, prefabricated, single, plain	1 Carp	.60	13.333		2,800	590		3,390	3,975
Deluxe		.40	20		7,725	880		8,605	9,850
Double, plain		.40	20		5,625	880		6,505	7,525
Deluxe		.20	40		17,500	1,775		19,275	22,000
Lecterns, wood, plain		5	1.600		835	70.50		905.50	1,025
Deluxe		2	4		5,675	176		5,851	6,500
Pulpits, hardwood, prefabricated, plain		2	4		1,375	176		1,551	1,775
Deluxe		1.60	5	▼	9,350	221		9,571	10,600
Railing, hardwood, average		25	.320	L.F.	192	14.10		206.10	233
Seating, individual, oak, cantour, laminated	▼	21	.381	Person	165	16.80		181.80	207

11 91 Religious Equipment

11 91 23 - Sanctuary Equipment

11 91 23.10 Sanctuary Furnishings		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
3100	Cushion seat	1 Carp	21	.381	Person	149	16.80		165.80
3200	Fully upholstered		21	.381		146	16.80		162.80
3300	Combination, self-rising		21	.381		375	16.80		391.80
3500	For cherry, add					30%			
5000	Wall cross, aluminum, extruded, 2" x 2" section	1 Carp	34	.235	L.F.	160	10.40		170.40
5150	4" x 4" section		29	.276		230	12.15		242.15
5300	Bronze, extruded, 1" x 2" section		31	.258		315	11.40		326.40
5350	2-1/2" x 2-1/2" section		34	.235		480	10.40		490.40
5450	Solid bar stock, 1/2" x 3" section		29	.276		625	12.15		637.15
5600	Fiberglass, stock		34	.235		130	10.40		140.40
5700	Stainless steel, 4" deep, channel section		29	.276		505	12.15		517.15
5800	4" deep box section		29	.276		690	12.15		702.15

Estimating Tips

General

Items in this division are usually priced per square foot or per linear foot. Most of these items are purchased by the owner and installed by the contractor. Do not assume the items in Division 12 will be purchased and installed by the contractor. Check the specifications for responsibilities and include pricing, storage, installation, mechanical and electrical work in the appropriate divisions.

- Some items in this division require some type of support system that is not usually furnished with the item. Examples of these systems include blocking for the attachment of casework and heavy drapery rods. The required blocking must be added to the estimate in the appropriate division.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

12 21 Window Blinds

12 21 13 – Horizontal Louver Blinds

12 21 13.13 Metal Horizontal Louver Blinds		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
0010	METAL HORIZONTAL LOUVER BLINDS								
0020	Horizontal, 1" aluminum slats, solid color, stock	1 Corp	590	.014	S.F.	4.99	.60		5.59
0090	Custom, minimum		590	.014		5.50	.60		6.10
0100	Maximum		440	.018		7.40	.80		8.20
0250	2" aluminum slats, custom, minimum		590	.014		8.55	.60		9.15
0350	Maximum		440	.018		13.80	.80		14.60
0450	Stock, minimum		590	.014		5	.60		5.60
0500	Maximum		440	.018		8.15	.80		8.95
0600	2" steel slats, stock, minimum		590	.014		1.90	.60		2.50
0630	Maximum		440	.018		5.30	.80		6.10
0750	Custom, minimum		590	.014		1.72	.60		2.32
0850	Maximum		400	.020		8.50	.88		9.38

12 21 13.33 Vinyl Horizontal Louver Blinds

0010	VINYL HORIZONTAL LOUVER BLINDS								
0100	2" custom composite, 48" wide, 48" high	1 Corp	30	.267	Ea.	89	11.75		100.75
0120	72" high		29	.276		133	12.15		145.15
0140	96" high		28	.286		167	12.60		179.60
0200	60" wide, 60" high		27	.296		109	13.05		122.05
0220	72" high		25	.320		127	14.10		141.10
0240	96" high		24	.333		176	14.70		190.70
0300	72" wide, 72" high		25	.320		183	14.10		197.10
0320	96" high		23	.348		255	15.35		270.35
0400	96" wide, 96" high		20	.400		310	17.65		327.65
1000	2" custom faux wood, 48" wide, 48" high		30	.267		57.50	11.75		69.25
1020	72" high		29	.276		75.50	12.15		87.65
1040	96" high		28	.286		94	12.60		106.60
1300	72" wide, 72" high		25	.320		117	14.10		131.10
1320	96" high		23	.348		186	15.35		201.35
1400	96" wide, 96" high		20	.400		207	17.65		224.65

12 21 16 – Vertical Louver Blinds

12 21 16.13 Metal Vertical Louver Blinds

0010	METAL VERTICAL LOUVER BLINDS								
1500	Vertical, 3" to 5" PVC or cloth strips, minimum	1 Corp	460	.017	S.F.	9.90	.77		10.67
1600	Maximum		400	.020		26.50	.88		27.38
1800	4" aluminum slats, minimum		460	.017		7.95	.77		8.72
1900	Maximum		400	.020		13	.88		13.88
1950	Mylar mirror-finish strips, to 8" wide, minimum		460	.017		4.85	.77		5.62
1970	Maximum		400	.020		11.05	.88		11.93

12 22 Curtains and Drapes

12 22 16 – Drapery Track and Accessories

12 22 16.10 Drapery Hardware

0010	DRAPERY HARDWARE								
0030	Standard traverse, per foot, minimum	1 Corp	59	.136	L.F.	5.75	6		11.75
0100	Maximum		51	.157	"	8.05	6.90		14.95
4000	Traverse rods, adjustable, 28" to 48"		22	.364	Ea.	22	16.05		38.05
4020	48" to 84"		20	.400		28	17.65		45.65
4040	66" to 120"		18	.444		34	19.60		53.60
4060	84" to 156"		16	.500		38.50	22		60.50
4080	100" to 180"		14	.571		44	25		69

22 Curtains and Drapes

2 16 – Drapery Track and Accessories

2 16.10 Drapery Hardware	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
156" to 228"	1 Corp	13	.615	Eq.	49.50	27		76.50	96.50
228" to 312"		13	.615		59.50	27		86.50	108
Double rods, adjustable, 30" to 48"		9	.889		37.50	39		76.50	102
48" to 86"		9	.889		55.50	39		94.50	122
86" to 150"		8	1		60	44		104	134
100" to 180"		7	1.143		63	50.50		113.50	147
Tray and curtain rod, adjustable, 30" to 48"		9	.889		29.50	39		68.50	92.50
48" to 86"		9	.889		41.50	39		80.50	106
86" to 150"		8	1		52.50	44		96.50	126
100" to 180"		7	1.143		61	50.50		111.50	145
Volance, pinch pleated fabric, 12" deep, up to 54" long, minimum					36.50			36.50	40.50
Maximum					91.50			91.50	101
Up to 77" long, minimum					56.50			56.50	62
Maximum					148			148	163
Stationary rods, first 2'					9.35			9.35	10.25
Each additional foot, add				L.F.	3.64			3.64	4

2 16.20 Blast Curtains

BLAST CURTAINS per L.F. horizontal opening width, off-white or gray fabric									
Blast curtains, drapery system, complete, including hardware, minimum	1 Corp	10.25	.780	L.F.	185	34.50		219.50	257
Average		10.25	.780		200	34.50		234.50	273
Maximum		10.25	.780		230	34.50		264.50	305

23 Interior Shutters

3 10 – Wood Interior Shutters

3 10.10 Wood Interior Shutters

WOOD INTERIOR SHUTTERS, louvered									
Two panel, 27" wide, 36" high	1 Corp	5	1.600	Set	146	70.50		216.50	270
33" wide, 36" high		5	1.600		192	70.50		262.50	320
47" wide, 36" high		5	1.600		253	70.50		323.50	385
Four panel, 27" wide, 36" high		5	1.600		179	70.50		249.50	305
33" wide, 36" high		5	1.600		230	70.50		300.50	360
47" wide, 36" high		5	1.600		305	70.50		375.50	445

3 10.13 Wood Panels

WOOD PANELS									
Wood folding panels with movable louvers, 7" x 20" each	1 Corp	17	.471	Pr.	78	21		99	118
8" x 28" each		17	.471		78	21		99	118
9" x 36" each		17	.471		90	21		111	131
10" x 40" each		17	.471		98	21		119	140
Fixed louver type, stock units, 8" x 20" each		17	.471		92	21		113	133
10" x 28" each		17	.471		78	21		99	118
12" x 36" each		17	.471		92	21		113	133
18" x 40" each		17	.471		132	21		153	177
Insert panel type, stock, 7" x 20" each		17	.471		20	21		41	54
8" x 28" each		17	.471		37	21		58	72.50
9" x 36" each		17	.471		47	21		68	83.50
10" x 40" each		17	.471		50	21		71	87
Raised panel type, stock, 10" x 24" each		17	.471		233	21		254	288
12" x 26" each		17	.471		233	21		254	288
14" x 30" each		17	.471		258	21		279	315
16" x 36" each		17	.471		285	21		306	345

12 23 Interior Shutters

12 23 10 – Wood Interior Shutters

12 23 10.13 Wood Panels		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total
							Labor	Equipment	
6000	For custom built pine, add				Pr.	22%			
6500	For custom built hardwood blinds, add				▼	42%			

12 24 Window Shades

12 24 13 – Roller Window Shades

12 24 13.10 Shades

0010	SHADES								
0020	Basswood, roll-up, stain finish, 3/8" slots	1 Carp	300	.027	S.F.	13.95	1.18		15.13
0200	7/8" slots		300	.027		13.15	1.18		14.33
0300	Vertical side slide, stain finish, 3/8" slots		300	.027		18.05	1.18		19.23
0400	7/8" slots	▼	300	.027		18.05	1.18		19.23
0500	For fire retardant finishes, add					16%			
0600	For "B" rated finishes, add					20%			
0900	Mylar, single layer, non-heat reflective	1 Carp	685	.012		6.90	.52		7.42
1000	Double layered, heat reflective		685	.012		9.55	.52		10.07
1100	Triple layered, heat reflective	▼	685	.012	▼	11.10	.52		11.62
1200	For metal roller instead of wood, add per				Shade	4.33			4.33
1300	Vinyl coated cotton, standard	1 Carp	685	.012	S.F.	3.53	.52		4.05
1400	Lightproof decorator shades		685	.012		2.21	.52		2.73
1500	Vinyl, lightweight, 4 gauge		685	.012		.58	.52		1.10
1600	Heavyweight, 6 gauge		685	.012		1.75	.52		2.27
1700	Vinyl laminated fiberglass, 6 ga., translucent		685	.012		2.48	.52		3
1800	Lightproof		685	.012		4.03	.52		4.55
3000	Woven aluminum, 3/8" thick, lightproof and fireproof	▼	350	.023	▼	5.65	1.01		6.66

12 32 Manufactured Wood Casework

12 32 16 – Manufactured Plastic-Laminate-Clad Casework

12 32 16.20 Plastic Laminate Casework Doors

0010	PLASTIC LAMINATE CASEWORK DOORS								
1000	For casework frames, see Section 12 32 23.15								
1100	For casework hardware, see Section 12 32 23.35								
6000	Plastic laminate on particle board								
6100	12" wide, 18" high	1 Carp	25	.320	Ea.	12.20	14.10		26.30
6140	30" high		23	.348		20.50	15.35		35.85
6500	18" wide, 18" high		24	.333		18.35	14.70		33.05
6600	30" high	▼	22	.364	▼	30.50	16.05		46.55

12 32 16.25 Plastic Laminate Drawer Fronts

0010	PLASTIC LAMINATE DRAWER FRONTS								
2800	Plastic laminate on particle board front								
3000	4" high, 12" wide	1 Carp	17	.471	Ea.	5.20	21		26.20
3200	18" wide	"	16	.500	"	7.75	22		29.75

12 32 23 – Hardwood Casework

12 32 23.10 Manufactured Wood Casework, Stock Units

0010	MANUFACTURED WOOD CASEWORK, STOCK UNITS								
0300	Built-in drawer units, pine, 18" deep, 32" high, unfinished								
0400	Minimum	2 Carp	53	.302	L.F.	149	13.30		162.30
0500	Maximum	"	40	.400	"	185	17.65		202.65
0700	Kitchen base cabinets, hardwood, not incl. counter tops,								

32 Manufactured Wood Casework

23 – Hardwood Casework

3.10 Manufactured Wood Casework, Stock Units	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
24" deep, 35" high, prefinished									
One top drawer, one door below, 12" wide	2 Carp	24.80	.645	Eo.	234	28.50		262.50	300
18" wide		23.30	.687		263	30.50		293.50	335
24" wide		22.30	.717		310	31.50		341.50	390
Four drawers, 12" wide		24.80	.645		246	28.50		274.50	315
18" wide		23.30	.687		275	30.50		305.50	350
24" wide		22.30	.717		310	31.50		341.50	390
Two top drawers, two doors below, 27" wide		22	.727		340	32		372	425
36" wide		20.30	.788		410	35		445	505
48" wide		18.90	.847		470	37.50		507.50	575
Range or sink base, two doors below, 30" wide		21.40	.748		315	33		348	395
36" wide		20.30	.788		355	35		390	445
48" wide	▼	18.90	.847		395	37.50		432.50	495
For sink front units, deduct					140			140	154
Corner base cabinets, 36" wide, standard	2 Carp	18	.889		550	39		589	670
Lozy Susan with revolving door	"	16.50	.970	▼	740	43		783	880
Kitchen wall cabinets, hardwood, 12" deep with two doors									
12" high, 30" wide	2 Carp	24.80	.645	Eo.	210	28.50		238.50	275
36" wide		24	.667		246	29.50		275.50	315
15" high, 30" wide		24	.667		210	29.50		239.50	276
36" wide		22.70	.705		246	31		277	320
24" high, 30" wide		23.30	.687		282	30.50		312.50	355
36" wide		22.70	.705		310	31		341	390
30" high, one door, 12" wide		22	.727		200	32		232	270
18" wide		20.90	.766		234	34		268	310
24" wide		20.30	.788		273	35		308	355
Two doors, 27" wide		19.80	.808		300	35.50		335.50	385
36" wide		18.80	.851		350	37.50		387.50	445
48" wide		18.40	.870		440	38.50		478.50	545
Corner wall, 30" high, 24" wide		18	.889		271	39		310	360
30" wide		17.20	.930		280	41		321	375
36" wide		16.50	.970		296	43		339	390
Revolving Lozy Susan		15.20	1.053		425	46.50		471.50	535
Broom cabinet, 84" high, 24" deep, 18" wide		10	1.600		590	70.50		660.50	760
Oven cabinets, 84" high, 24" deep, 27" wide		8	2	▼	860	88		948	1,075
Valance board trim	▼	396	.040	L.F.	12.40	1.78		14.18	16.40
For deluxe models of all cabinets, add					40%				
For custom built in place, add					25%	10%			
Rule of thumb, kitchen cabinets not including									
appliances & counter top, minimum	2 Carp	30	.533	L.F.	150	23.50		173.50	201
Maximum	"	25	.640	"	320	28		348	395
For metal cabinets, see Section 12 35 70.13									

23.15 Manufactured Wood Casework Frames

MANUFACTURED WOOD CASEWORK FRAMES									
Base cabinets, counter storage, 36" high									
One bay, 18" wide	1 Carp	2.70	2.963	Eo.	137	131		268	350
Two bay, 36" wide		2.20	3.636		209	160		369	475
Three bay, 54" wide		1.50	5.333		249	235		484	635
Bookcases, one bay, 7' high, 18" wide		2.40	3.333		161	147		308	405
Two bay, 36" wide		1.60	5		234	221		455	595
Three bay, 54" wide		1.20	6.667		385	294		679	875
Coat racks, one bay, 7' high, 24" wide	▼	4.50	1.778	▼	161	78.50		239.50	298

12 32 Manufactured Wood Casework

12 32 23 – Hardwood Casework

12 32 23.15 Manufactured Wood Casework Frames		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total
							Labor	Equipment	
5300	Two bay, 48" wide	1 Carp	2.75	2.909	Ea.	224	128		352
5800	Three bay, 72" wide		2.10	3.810		330	168		498
6100	Wall mounted cabinet, one bay, 24" high, 18" wide		3.60	2.222		88.50	98		186.50
6800	Two bay, 36" wide		2.20	3.636		129	160		289
7400	Three bay, 54" wide		1.70	4.706		161	208		369
8400	30" high, one bay, 18" wide		3.60	2.222		96	98		194
9000	Two bay, 36" wide		2.15	3.721		128	164		292
9400	Three bay, 54" wide		1.60	5		160	221		381
9800	Wardrobe, 7' high, single, 24" wide		2.70	2.963		177	131		308
9880	Partition & adjustable shelves, 48" wide		1.70	4.706		226	208		434
9950	Partition, adjustable shelves & drawers, 48" wide		1.40	5.714		340	252		592

12 32 23.20 Manufactured Hardwood Casework Doors

0010 MANUFACTURED HARDWOOD CASEWORK DOORS									
2000	Glass panel, hardwood frame								
2200	12" wide, 18" high	1 Carp	34	.235	Ea.	25	10.40		35.40
2600	30" high		32	.250		41.50	11.05		52.55
4450	18" wide, 18" high		32	.250		37.50	11.05		48.55
4550	30" high		29	.276		62.50	12.15		74.65
5000	Hardwood, raised panel								
5100	12" wide, 18" high	1 Carp	16	.500	Ea.	28	22		50
5200	30" high		15	.533		47	23.50		70.50
5500	18" wide, 18" high		15	.533		42	23.50		65.50
5600	30" high		14	.571		70.50	25		95.50

12 32 23.25 Manufactured Wood Casework Drawer Fronts

0010 MANUFACTURED WOOD CASEWORK DRAWER FRONTS									
0100	Solid hardwood front								
1000	4" high, 12" wide	1 Carp	17	.471	Ea.	3.41	21		24.41
1200	18" wide	"	16	.500	"	5.05	22		27.05

12 32 23.30 Manufactured Wood Casework Vanities

0010 MANUFACTURED WOOD CASEWORK VANITIES									
8000	Vanity bases, 2 doors, 30" high, 21" deep, 24" wide	2 Carp	20	.800	Ea.	233	35.50		268.50
8050	30" wide		16	1		268	44		312
8100	36" wide		13.33	1.200		355	53		408
8150	48" wide		11.43	1.400		425	61.50		486.50
9000	For deluxe models of all vanities, add to above					40%			
9500	For custom built in place, add to above					25%	10%		

12 32 23.35 Manufactured Wood Casework Hardware

0010 MANUFACTURED WOOD CASEWORK HARDWARE									
1000	Catches, minimum	1 Carp	235	.034	Ea.	1.15	1.50		2.65
1040	Maximum	"	80	.100	"	7.20	4.41		11.61
2000	Door/drawer pulls, handles								
2200	Handles and pulls, projecting, metal, minimum	1 Carp	48	.167	Ea.	4.66	7.35		12.01
2240	Maximum		24	.333		9.85	14.70		24.55
2300	Wood, minimum		48	.167		4.90	7.35		12.25
2340	Maximum		24	.333		9	14.70		23.70
2600	Flush, metal, minimum		48	.167		4.90	7.35		12.25
2640	Maximum		24	.333		9	14.70		23.70
3000	Drawer tracks/glides, minimum		48	.167	Pr.	8.30	7.35		15.65
3040	Maximum		24	.333		24	14.70		38.70
4000	Cabinet hinges, minimum		160	.050		2.82	2.21		5.03
4040	Maximum		68	.118		10.70	5.20		15.90

235 Specialty Casework

50 – Educational/Library Casework

50.13 Educational Casework

EDUCATIONAL CASEWORK

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
School, 24" deep, metal, 84" high units	2 Corp	15	1.067	L.F.	395	47		442	510
Counter height units		20	.800		266	35.50		301.50	350
Wood, custom fabricated, 32" high counter		20	.800		221	35.50		256.50	299
Add for counter top		56	.286		23.50	12.60		36.10	45.50
84" high wall units	▼	15	1.067	▼	430	47		477	550
Laminated plastic finish is same price as wood									

53 – Laboratory Casework

53.13 Metal Laboratory Casework

METAL LABORATORY CASEWORK

Cabinets, base, door units, metal	2 Corp	18	.889	L.F.	212	39		251	294
Drower units		18	.889		475	39		514	580
Tall storage cabinets, open, 7' high		20	.800		455	35.50		490.50	555
With glazed doors		20	.800		695	35.50		730.50	820
Wall cabinets, metal, 12-1/2" deep, open		20	.800		149	35.50		184.50	219
With doors	▼	20	.800	▼	310	35.50		345.50	395
Rule of thumb: lab furniture including installation & connection									
High school				S.F.				35	39
College								52	57
Clinical, health care								45	49.50
Industrial								72.50	79.50

559 – Display Casework

559.10 Display Cases

DISPLAY CASES Free standing, all glass									
Aluminum frame, 42" high x 36" x 12" deep	2 Corp	8	2	Eq.	1,225	88		1,313	1,450
70" high x 48" x 18" deep	"	6	2.667		3,575	118		3,693	4,125
For wood bases, add						9%			
For hardwood frames, deduct						8%			
For bronze, baked enamel finish, add				▼		10%			
Wall mounted, glass front, aluminum frame									
Non-illuminated, one section 3' x 4' x 1'-4"	2 Corp	5	3.200	Eq.	2,150	141		2,291	2,575
5' x 4' x 1'-4"		5	3.200		2,475	141		2,616	2,950
6' x 4' x 1'-4"		4	4		2,975	176		3,151	3,550
Two sections, 8' x 4' x 1'-4"		2	8		2,050	355		2,405	2,800
10' x 4' x 1'-4"		2	8		2,075	355		2,430	2,825
Three sections, 16' x 4' x 1'-4"	▼	1.50	10.667	▼	3,900	470		4,370	5,025
For fluorescent lights, add				Section	330			330	365
Table exhibit cases, 2' wide, 3' high, 4' long, flat top	2 Corp	5	3.200	Eq.	1,250	141		1,391	1,600
3' wide, 3' high, 4' long, sloping top	"	3	5.333	"	925	235		1,160	1,375

570 – Healthcare Casework

570.13 Hospital Casework

HOSPITAL CASEWORK

Base cabinets, laminated plastic	2 Corp	10	1.600	L.F.	254	70.50		324.50	390
Stainless steel	"	10	1.600		465	70.50		535.50	625
For all drawers, add						26.50		26.50	29
Cabinet base trim, 4" high, enameled steel	2 Corp	200	.080		42.50	3.53		46.03	52.50
Stainless steel		200	.080		85	3.53		88.53	99
Countertop, laminated plastic, no backsplash		40	.400		44	17.65		61.65	75
With backsplash		40	.400	▼	54.50	17.65		72.15	87
For sink cutout, odd		12.20	1.311	Eq.		58		58	89
Stainless steel counter top	▼	40	.400	L.F.	142	17.65		159.65	183

12 35 Specialty Casework

12 35 70 – Healthcare Casework

12 35 70.13 Hospital Casework

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total
2000	For drop-in stainless 43" x 21" sink, add				Ea.	930			930
2500	Wall cabinets, laminated plastic	2 Carp	15	1.067	L.F.	190	47		237
2600	Enameled steel		15	1.067		233	47		280
2700	Stainless steel	▼	15	1.067		465	47		512
2800	For glass doors, add				▼	32			32

12 35 70.16 Nurse Station Casework

	NURSE STATION CASEWORK								
0010									
2100	Door type, laminated plastic	2 Carp	10	1.600	L.F.	294	70.50		364.50
2200	Enameled steel		10	1.600		281	70.50		351.50
2300	Stainless steel	▼	10	1.600		560	70.50		630.50
2400	For drawer type, add				▼	239			239

12 35 80 – Commercial Kitchen Casework

12 35 80.13 Metal Kitchen Casework

	METAL KITCHEN CASEWORK								
0010									
3500	Base cabinets, metal, minimum	2 Carp	30	.533	L.F.	68.50	23.50		92
3600	Maximum		25	.640		174	28		202
3700	Wall cabinets, metal, minimum		30	.533		68.50	23.50		92
3800	Maximum	▼	25	.640	▼	157	28		185

12 36 Countertops

12 36 16 – Metal Countertops

12 36 16.10 Stainless Steel Countertops

	STAINLESS STEEL COUNTERTOPS								
0010									
3200	Stainless steel, custom	1 Carp	24	.333	S.F.	145	14.70		159.70

12 36 19 – Wood Countertops

12 36 19.10 Maple Countertops

	MAPLE COUNTERTOPS								
0010									
2900	Solid, laminated, 1-1/2" thick, no splash	1 Carp	28	.286	L.F.	74	12.60		86.60
3000	With square splash		28	.286	"	88	12.60		100.60
3400	Recessed cutting block with trim, 16" x 20" x 1"	▼	8	1	Ea.	74	44		118

12 36 23 – Plastic Countertops

12 36 23.13 Plastic-Laminate-Clad Countertops

	PLASTIC-LAMINATE-CLAD COUNTERTOPS								
0010									
0020	Stack, 24" wide w/backsplash, minimum	1 Carp	30	.267	L.F.	9.85	11.75		21.60
0100	Maximum		25	.320		21	14.10		35.10
0300	Custom plastic, 7/8" thick, aluminum molding, no splash		30	.267		22.50	11.75		34.25
0400	Cove splash		30	.267		29	11.75		40.75
0600	1-1/4" thick, no splash		28	.286		31.50	12.60		44.10
0700	Square splash		28	.286		32	12.60		44.60
0900	Square edge, plastic face, 7/8" thick, no splash		30	.267		28	11.75		39.75
1000	With splash	▼	30	.267		36	11.75		47.75
1200	For stainless channel edge, 7/8" thick, add					3			3
1300	1-1/4" thick, add					3.50			3.50
1500	For solid color suede finish, add				▼	3			3
1700	For end splash, add				Ea.	18			18
1900	For cut outs, standard, add, minimum	1 Carp	32	.250		4	11.05		15.05
2000	Maximum		8	1	▼	6	44		50
2100	Postformed, including backsplash and front edge		30	.267	L.F.	11	11.75		22.75
2110	Mitred, add	▼	12	.667	Ea.		29.50		29.50

36 Countertops

23 – Plastic Countertops

3.13 Plastic-Laminate-Clad Countertops	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Built-in place, 25" wide, plastic laminate	1 Corp	25	.320	L.F.	30	14.10		44.10	54.50

33 – Tile Countertops

3.10 Ceramic Tile Countertops

CERAMIC TILE COUNTERTOPS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Ceramic tile mosaic	1 Corp	25	.320	L.F.	33	14.10		47.10	58

40 – Stone Countertops

3.10 Natural Stone Countertops

NATURAL STONE COUNTERTOPS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Marble, stock, with splash, 1/2" thick, minimum	1 Bric	17	.471	L.F.	41	21		62	76.50
3/4" thick, maximum		13	.615		103	27		130	154
Granite, average, 1-1/4" thick, 24" wide, no splash		13.01	.615		135	27		162	190

53 – Laboratory Countertops

3.10 Laboratory Countertops and Sinks

LABORATORY COUNTERTOPS AND SINKS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Countertops, not incl. base cabinets, acid-proof, minimum	2 Corp	82	.195	S.F.	36.50	8.60		45.10	53.50
Maximum		70	.229		46.50	10.10		56.60	67
Stainless steel		82	.195		135	8.60		143.60	161

561 – Simulated Stone Countertops

3.16 Solid Surface Countertops

SOLID SURFACE COUNTERTOPS, Acrylic polymer	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Pricing for orders of 100 L.F. or greater									
25" wide, solid colors	2 Corp	28	.571	L.F.	44.50	25		69.50	88
Patterned colors		28	.571		56.50	25		81.50	101
Premium patterned colors		28	.571		70.50	25		95.50	117
With silicone attached 4" backsplash, solid colors		27	.593		49	26		75	94
Patterned colors		27	.593		62	26		88	108
Premium patterned colors		27	.593		77	26		103	125
With hard seam attached 4" backsplash, solid colors		23	.696		49	30.50		79.50	101
Patterned colors		23	.696		62	30.50		92.50	115
Premium patterned colors		23	.696		77	30.50		107.50	132
Pricing for order of 51 – 99 L.F.									
25" wide, solid colors	2 Corp	24	.667	L.F.	51.50	29.50		81	102
Patterned colors		24	.667		65	29.50		94.50	117
Premium patterned colors		24	.667		81.50	29.50		111	135
With silicone attached 4" backsplash, solid colors		23	.696		56.50	30.50		87	109
Patterned colors		23	.696		71.50	30.50		102	126
Premium patterned colors		23	.696		89	30.50		119.50	145
With hard seam attached 4" backsplash, solid colors		20	.800		56.50	35.50		92	117
Patterned colors		20	.800		71.50	35.50		107	133
Premium patterned colors		20	.800		89	35.50		124.50	152
Pricing for order of 1 – 50 L.F.									
25" wide, solid colors	2 Corp	20	.800	L.F.	60	35.50		95.50	121
Patterned colors		20	.800		76.50	35.50		112	139
Premium patterned colors		20	.800		95.50	35.50		131	160
With silicone attached 4" backsplash, solid colors		19	.842		66	37		103	130
Patterned colors		19	.842		83.50	37		120.50	149
Premium patterned colors		19	.842		104	37		141	172
With hard seam attached 4" backsplash, solid colors		15	1.067		66	47		113	145
Patterned colors		15	1.067		83.50	47		130.50	165
Premium patterned colors		15	1.067		104	47		151	188

12 36 Countertops

12 36 61 – Simulated Stone Countertops

12 36 61.16 Solid Surface Countertops

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
3000	Sinks, pricing for order of 100 or greater units								
3100	Single bowl, hard seamed, solid colors, 13" x 17"	1 Corp	3	2.667	Eo.	300	118		418
3200	10" x 15"		7	1.143		139	50.50		189.50
3300	Cutouts for sinks		8	1			44		44
3400	Sinks, pricing for order of 51 – 99 units								
3500	Single bowl, hard seamed, solid colors, 13" x 17"	1 Corp	2.55	3.137	Eo.	345	138		483
3600	10" x 15"		6	1.333		160	59		219
3700	Cutouts for sinks		7	1.143			50.50		50.50
3800	Sinks, pricing for order of 1 – 50 units								
3900	Single bowl, hard seamed, solid colors, 13" x 17"	1 Corp	2	4	Eo.	405	176		581
4000	10" x 15"		4.55	1.758		188	77.50		265.50
4100	Cutouts for sinks		5.25	1.524			67		67
4200	Cooktop cutouts, pricing for 100 or greater units		4	2		22	88		110
4300	51 – 99 units		3.40	2.353		25.50	104		129.50
4400	1 – 50 units		3	2.667		30	118		148

12 36 61.17 Solid Surface Vanity Tops

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
0010	SOLID SURFACE VANITY TOPS								
0015	Solid surface, center bowl, 17" x 19"	1 Corp	12	.667	Eo.	175	29.50		204.50
0020	19" x 25"		12	.667		180	29.50		209.50
0030	19" x 31"		12	.667		210	29.50		239.50
0040	19" x 37"		12	.667		244	29.50		273.50
0050	22" x 25"		10	.800		320	35.50		355.50
0060	22" x 31"		10	.800		375	35.50		410.50
0070	22" x 37"		10	.800		435	35.50		470.50
0080	22" x 43"		10	.800		495	35.50		530.50
0090	22" x 49"		10	.800		550	35.50		585.50
0110	22" x 55"		8	1		625	44		669
0120	22" x 61"		8	1		715	44		759
0220	Double bowl, 22" x 61"		8	1		805	44		849
0230	Double bowl, 22" x 73"		8	1		1,400	44		1,444
0240	For aggregate colors, add					35%			
0250	For faucets and fittings, see Section 22 41 39.10								

12 36 61.19 Quartz Agglomerate Countertops

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
0010	QUARTZ AGGLOMERATE COUNTERTOPS								
0100	25" wide, 4" backsplash, color group A, minimum	2 Corp	15	1.067	L.F.	58	47		105
0110	Maximum		15	1.067		81	47		128
0120	Color group B, minimum		15	1.067		60	47		107
0130	Maximum		15	1.067		85	47		132
0140	Color group C, minimum		15	1.067		70	47		117
0150	Maximum		15	1.067		96	47		143
0160	Color group D, minimum		15	1.067		76	47		123
0170	Maximum		15	1.067		103	47		150

46 Furnishing Accessories

13 – Ash Receptacles

13.10 Ash/Trash Receivers

ASH/TRASH RECEIVERS

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Ash urn, cylindrical metal									
8" diameter, 20" high	1 Clob	60	.133	Eq.	160	4.68		164.68	183
10" diameter, 26" high	"	60	.133	"	120	4.68		124.68	139
Combination ash/trash urn, metal									
8" diameter, 20" high	1 Clob	60	.133	Eq.	160	4.68		164.68	183
10" diameter, 26" high	"	60	.133	"	120	4.68		124.68	139

19 – Clocks

19.50 Wall Clocks

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
WALL CLOCKS									
12" diameter, single face	1 Elec	8	1	Eq.	139	51.50		190.50	229
Double face	"	6.20	1.290	"	350	66.50		416.50	485

33 – Waste Receptacles

33.13 Trash Receptacles

TRASH RECEPTACLES

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Trash receptacle, metal									
8" diameter, 15" high	1 Clob	60	.133	Eq.	75	4.68		79.68	89.50
10" diameter, 18" high		60	.133		150	4.68		154.68	172
16" x 8" x 14" high	▼	60	.133	▼	24	4.68		28.68	33.50
Plastic, with lid									
35 gallon	1 Clob	60	.133	Eq.	130	4.68		134.68	150
45 gallon		60	.133		220	4.68		224.68	249
Plastic recycling barrel, w/lid & wheels, 32 gal.	G	60	.133		80	4.68		84.68	95
65 gal.	G	60	.133		515	4.68		519.68	570
95 gal.	G	60	.133	▼	985	4.68		989.68	1,075

48 Rugs and Mats

13 – Entrance Floor Mats and Frames

13.13 Entrance Floor Mats

ENTRANCE FLOOR MATS

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Recessed, in-laid black rubber, 3/8" thick, solid	1 Clob	155	.052	S.F.	21	1.81		22.81	26
Perforated		155	.052		14.50	1.81		16.31	18.75
1/2" thick, solid		155	.052		17.40	1.81		19.21	22
Perforated		155	.052		22.50	1.81		24.31	27.50
In colors, 3/8" thick, solid		155	.052		18.75	1.81		20.56	23.50
Perforated		155	.052		19.35	1.81		21.16	24.50
1/2" thick, solid		155	.052		24.50	1.81		26.31	29.50
Perforated		155	.052		25	1.81		26.81	30.50
Recycled rubber tire tile, 12" x 12" x 3/8" thick	G	125	.064		8.65	2.25		10.90	13
Natural cocoa fiber, 1/2" thick	G	125	.064		7.65	2.25		9.90	11.85
3/4" thick	G	125	.064		6.40	2.25		8.65	10.45
1" thick	G	125	.064	▼	7.05	2.25		9.30	11.20

12 51 Office Furniture

12 51 16 – Case Goods

12 51 16.13 Metal Case Goods

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total
0010	METAL CASE GOODS								
0020	Desks, 29" high, double pedestal, 30" x 60", metal, minimum				Ea.	540			540
0030	Maximum					1,325			1,325
0600	Desks, single pedestal, 30" x 60", metal, minimum					475			475
0620	Maximum					1,075			1,075
0720	Desks, secretarial, 30" x 60", metal, minimum					480			480
0730	Maximum					755			755
0740	Return, 20" x 42", minimum					335			335
0750	Maximum					500			500
0940	59" x 12" x 23" high, steel, minimum					290			290
0960	Maximum					355			355

12 51 16.16 Wood Case Goods

0010	WOOD CASE GOODS								
0150	Desk, 29" high, double pedestal, 30" x 60"								
0160	Wood, minimum				Ea.	700			700
0180	Maximum				"	2,575			2,575
0630	Single pedestal, 30" x 60"								
0640	Wood, minimum				Ea.	565			565
0650	Maximum					810			810
0670	Executive return, 24" x 42", with box, file, wood, minimum					345			345
0680	Maximum					810			810
0790	Desk, 29" high, secretarial, 30" x 60"								
0800	Wood, minimum				Ea.	470			470
0810	Maximum					2,625			2,625
0820	Return, 20" x 42", minimum					299			299
0830	Maximum					1,025			1,025
0900	Desktop organizer, 72" x 14" x 36" high, wood, minimum					177			177
0920	Maximum					425			425
1110	Furniture, credenza, 29" high, 18" to 22" x 60" to 72"								
1120	Wood, minimum				Ea.	665			665
1140	Maximum				"	2,525			2,525

12 51 23 – Office Tables

12 51 23.33 Conference Tables

0010	CONFERENCE TABLES								
6050	Boat, 96" x 42", minimum				Ea.	795			795
6150	Maximum					3,225			3,225
6720	Rectangle, 96" x 42", minimum					1,200			1,200
6740	Maximum					3,225			3,225

12 52 Seating

12 52 23 – Office Seating

12 52 23.13 Office Chairs

0010	OFFICE CHAIRS								
2000	Standard office chair, executive, minimum				Ea.	330			330
2150	Maximum					1,825			1,825
2200	Management, minimum					207			207
2250	Maximum					2,275			2,275
2280	Task, minimum					145			145
2290	Maximum					500			500
2300	Arm kit, minimum					62.50			62.50

52 Seating

23 – Office Seating

23.13 Office Chairs	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Maximum				Ea.	111			111	122

54 Hospitality Furniture

13 – Hotel and Motel Furniture

13.10 Hotel Furniture

OTEL FURNITURE				Room					
Standard quality set, minimum				"	2,500			2,500	2,750
Maximum				"	8,875			8,875	9,750

16 – Restaurant Furniture

16.10 Tables, Folding

ABLES, FOLDING Laminated plastic tops									
Tubular steel legs with glides									
18" x 60", minimum				Ea.	253			253	279
Maximum					1,350			1,350	1,500
36" x 96", minimum					292			292	320
Maximum					2,725			2,725	3,000
Round, wood stained, plywood top, 60" diameter, minimum					420			420	465
Maximum				↓	1,475			1,475	1,625

16.20 Furniture, Restaurant

FURNITURE, RESTAURANT									
Bars, built-in, front bar	1 Carp	5	1.600	L.F.	262	70.50		332.50	400
Back bar	"	5	1.600	"	191	70.50		261.50	320
Booth seating, see Section 12 54 16.70									
Chair, bentwood side chair, metal, minimum				Ea.	87.50			87.50	96.50
Maximum					103			103	113
Upholstered seat & back, arms, minimum					143			143	157
Maximum				↓	405			405	445

16.70 Booths

BOOTHS									
Banquet, upholstered seat and back, custom									
Straight, minimum	2 Carp	40	.400	L.F.	186	17.65		203.65	232
Maximum		36	.444		360	19.60		379.60	430
"L" or "U" shape, minimum		35	.457		190	20		210	240
Maximum	↓	30	.533	↓	335	23.50		358.50	405
Upholstered outside finished backs for single booths and custom banquets									
Minimum	2 Carp	44	.364	L.F.	21.50	16.05		37.55	48
Maximum	"	40	.400	"	64.50	17.65		82.15	97.50
Fixed seating, one piece plastic chair and plastic laminate table top									
Two seat, 24" x 24" table, minimum	F-7	30	1.067	Ea.	750	42		792	890
Maximum		26	1.231		1,075	48.50		1,123.50	1,250
Four seat, 24" x 48" table, minimum		28	1.143		745	45.50		790.50	885
Maximum	↓	24	1.333	↓	1,275	53		1,328	1,475
Mount in floor, wood fiber core with plastic laminate face, single booth									
24" wide	F-7	30	1.067	Ea.	287	42		329	380
48" wide	"	28	1.143	"	365	45.50		410.50	470

12 55 Detention Furniture

12 55 13 - Detention Bunks

12 55 13.13 Cots		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	
0010 COTS										
2500 Bolted, single, painted steel		E-4	20	1.600	Ea.	330	80	6.10	416.10	
2700 Stainless steel		"	20	1.600	"	960	80	6.10	1,046.10	

12 56 Institutional Furniture

12 56 33 - Classroom Furniture

12 56 33.10 Furniture, School

0010 FURNITURE, SCHOOL										
0500 Classroom, movable chair & desk type, minimum					Set				73.50	
0600 Maximum					"				155	
1000 Chair, molded plastic										
1100 Integral tablet arm, minimum					Ea.	74			74	
1150 Maximum						166			166	
2000 Desk, single pedestal, top back compartment, minimum						132			132	
2020 Maximum						154			154	
2200 Flip top, minimum						193			193	
2220 Maximum						235			235	

12 56 43 - Dormitory Furniture

12 56 43.10 Dormitory Furnishings

0010 DORMITORY FURNISHINGS										
0300 Bunkable bed, twin, minimum					Ea.	390			390	
0320 Maximum						765			765	
1000 Chest, four drawer, minimum						340			340	
1020 Maximum						660			660	
1050 Built-in, minimum	2 Carp	13	1.231	L.F.	149	54.50			203.50	
1150 Maximum		10	1.600		275	70.50			345.50	
1200 Desk top, built-in, laminated plastic, 24" deep, minimum		50	.320		39.50	14.10			53.60	
1300 Maximum		40	.400		118	17.65			135.65	
1450 30" deep, minimum		50	.320		50.50	14.10			64.60	
1550 Maximum		40	.400		221	17.65			238.65	
1750 Dressing unit, built-in, minimum		12	1.333		223	59			282	
1850 Maximum		8	2		670	88			758	
8000 Rule of thumb: total cost for furniture, minimum				Student					2,525	
8050 Maximum				"					4,850	

12 56 51 - Library Furniture

12 56 51.10 Library Furnishings

0010 LIBRARY FURNISHINGS										
0100 Attendant desk, 36" x 62" x 29" high	1 Carp	16	.500	Ea.	2,375	22			2,397	
0200 Book display, "A" frame display, both sides, 42" x 42" x 60" high		16	.500		965	22			987	
0220 Table with bulletin board, 42" x 24" x 49" high		16	.500		860	22			882	
0800 Card catalogue, 30 tray unit		16	.500		2,900	22			2,922	
0840 60 tray unit		16	.500		5,275	22			5,297	
0880 72 tray unit	2 Carp	16	1		6,450	44			6,494	
1000 Carrels, single face, initial unit	1 Carp	16	.500		880	22			902	
1500 Double face, initial unit	2 Carp	16	1		1,150	44			1,194	
1710 Carrels, hardwood, 36" x 24", minimum	1 Carp	5	1.600		580	70.50			650.50	
1720 Maximum	"	4	2		1,325	88			1,413	
2700 Card catalog file, 60 trays, complete					5,950				5,950	
2720 Alternate method: each tray					99				99	
3800 Charging desk, built-in, with counter, plastic laminated top	1 Carp	7	1.143	L.F.	410	50.50			460.50	

56 Institutional Furniture

51 – Library Furniture

51.10 Library Furnishings

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Dictionary stand, stationary	1 Carp	16	.500	Ea.	840	22		862	955
Revolving		16	.500		345	22		367	415
Exhibit case, table style, 60" x 28" x 36"		11	.727	▼	2,800	32		2,832	3,150
Bookshelf, metal, 90" high, 10" shelf, double face		11.50	.696	L.F.	122	30.50		152.50	181
Single face	▼	12	.667	"	105	29.50		134.50	160
For 8" shelving, subtract from above					10%				
For 12" shelving, add to above					10%				
For 42" high with countertop, subtract from above					20%				
Mobile compacted shelving, hand crank, 9'-0" high									
Double face, including track, 3' section				Ea.	1,125			1,125	1,250
For electrical operation, add					25%				
Magazine shelving, 82" high, 12" deep, single face	1 Carp	11.50	.696	L.F.	92.50	30.50		123	149
Double face		11.50	.696	"	122	30.50		152.50	181
Tables, card catalog reference, 24" x 60" x 42"	▼	16	.500	Ea.	975	22		997	1,100
Reading table, laminated top, 60" x 36"				"	660			660	725

670 – Healthcare Furniture

70.10 Furniture, Hospital

FURNITURE, HOSPITAL

Beds, manual, minimum				Ea.	770			770	850
Maximum					2,600			2,600	2,875
Manual and electric beds, minimum					1,075			1,075	1,175
Maximum					3,075			3,075	3,375
All electric hospital beds, minimum					1,375			1,375	1,525
Maximum					4,450			4,450	4,875
Manual, nursing home beds, minimum					875			875	965
Maximum					1,825			1,825	2,000
Overbed table, laminated top, minimum					375			375	410
Maximum				▼	930			930	1,025
Patient wall systems, not incl. plumbing, minimum				Room	1,100			1,100	1,225
Maximum				"	2,050			2,050	2,250
Geriatric chairs, minimum				Ea.	390			390	430
Maximum				"	730			730	800

61 Fixed Audience Seating

61.13 – Upholstered Audience Seating

13.13 Auditorium Chairs

AUDITORIUM CHAIRS

All veneer construction	2 Carp	22	.727	Ea.	184	32		216	252
Veneer back, padded seat		22	.727		243	32		275	315
Fully upholstered, spring seat	▼	22	.727		232	32		264	305
For tablet arms, add					63.50			63.50	70
For fire retardancy, CATB-133, add				▼	27.50			27.50	30

13.23 Lecture Hall Seating

LECTURE HALL SEATING

Pedestal type, minimum	2 Carp	22	.727	Ea.	174	32		206	241
Maximum	"	14.50	1.103	"	580	48.50		628.50	715

12 63 Stadium and Arena Seating

12 63 13 – Stadium and Arena Bench Seating

12 63 13.13 Bleachers		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
0010	BLEACHERS								
3000	Telescoping, manual to 15 tier, minimum	F-5	65	.492	Seat	86	22		108
3100	Maximum		60	.533		129	24		153
3300	16 to 20 tier, minimum		60	.533		207	24		231
3400	Maximum		55	.582		259	26		285
3600	21 to 30 tier, minimum		50	.640		215	28.50		243.50
3700	Maximum		40	.800		259	35.50		294.50
3900	For integral power operation, add, minimum	2 Elec	300	.053		43	2.75		45.75
4000	Maximum	"	250	.064		69	3.30		72.30
5000	Benches, folding, in wall, 14' table, 2 benches	L-4	2	12	Set	730	495		1,225

12 67 Pews and Benches

12 67 13 – Pews

12 67 13.13 Sanctuary Pews									
0010	SANCTUARY PEWS								
1500	Bench type, hardwood, minimum	1 Carp	20	.400	L.F.	83	17.65		100.65
1550	Maximum	"	15	.533		165	23.50		188.50
1570	For kneeler, add					20.50			20.50

12 92 Interior Planters and Artificial Plants

12 92 33 – Interior Planters

12 92 33.10 Planters									
0010	PLANTERS								
1000	Fiberglass, hanging, 12" diameter, 7" high				Ea.	111			111
1500	Rectangular, 48" long, 16" high x 15" wide					650			650
1650	60" long, 30" high, 28" wide					1,050			1,050
2000	Round, 12" diameter, 13" high					134			134
2050	25" high					193			193
5000	Square, 10" side, 20" high					189			189
5100	14" side, 15" high					206			206
6000	Metal bowl, 32" diameter, 8" high, minimum					555			555
6050	Maximum					745			745
8750	Wood, fiberglass liner, square								
8780	14" square, 15" high, minimum				Ea.	360			360
8800	Maximum					445			445
9400	Plastic cylinder, molded, 10" diameter, 10" high					14.70			14.70
9500	11" diameter, 11" high					46.50			46.50

93 Site Furnishings

3 23 – Trash and Litter Receptors

23.10 Trash Receptacles	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
TRASH RECEPTACLES									
Fiberglass, 2' square, 18" high	2 Clab	30	.533	Ea.	780	18.70		798.70	885
2' square, 2'-6" high		30	.533		550	18.70		568.70	635
Circular, 2' diameter, 18" high		30	.533		465	18.70		483.70	540
2' diameter, 2'-6" high		30	.533		520	18.70		538.70	600
Recycled plastic, var colors, round, 32 gal., 28" x 38" H	G	5	3.200		445	112		557	665
32 gal., 31" x 32" H	G	5	3.200		490	112		602	715

23.20 Trash Closure

TRASH CLOSURE									
Steel with pullover cover, 2'-3" wide, 4'-7" high, 6'-2" long	2 Clab	5	3.200	Ea.	1,500	112		1,612	1,825
10'-1" long		4	4		1,925	140		2,065	2,350
Wood, 10' wide, 6' high, 10' long		1.20	13.333		1,675	470		2,145	2,575

3 33 – Manufactured Planters

33.10 Planters

PLANTERS									
Concrete, sandblasted, precast, 48" diameter, 24" high	2 Clab	15	1.067	Ea.	695	37.50		732.50	820
Fluted, precast, 7' diameter, 36" high		10	1.600		1,425	56		1,481	1,650
Fiberglass, circular, 36" diameter, 24" high		15	1.067		660	37.50		697.50	785
36" diameter, 27" high		12	1.333		780	47		827	930
33" high		15	1.067		835	37.50		872.50	980
24" diameter, 36" high		15	1.067		535	37.50		572.50	645
60" diameter, 39" high		8	2		1,350	70		1,420	1,575
60" diameter, 24" high		10	1.600		775	56		831	935
Square, 24" side, 36" high		15	1.067		680	37.50		717.50	805
24" side, 27" high		12	1.333		680	47		727	815
24" side, 16" high		20	.800		360	28		388	440
48" side, 36" high		15	1.067		990	37.50		1,027.50	1,150
Planter/bench, 72" square, 36" high		5	3.200		1,425	112		1,537	1,750
96" square, 27" high		5	3.200		2,175	112		2,287	2,575
Wood, square, 48" side, 24" high		15	1.067		1,325	37.50		1,362.50	1,525
Circular, 48" diameter, 30" high		10	1.600		910	56		966	1,075
72" diameter, 30" high		10	1.600		1,425	56		1,481	1,625
Planter/bench, 72"		5	3.200		3,150	112		3,262	3,650

3 43 – Site Seating and Tables

3 43.13 Site Seating

SITE SEATING									
Seating, benches, park, precast conc, w/backs, wood rails, 4' long	2 Clab	5	3.200	Ea.	535	112		647	765
8' long		4	4		1,050	140		1,190	1,375
Fiberglass, without back, one piece, 4' long		10	1.600		585	56		641	730
8' long		7	2.286		800	80		880	1,000
Steel barstock pedestals w/backs, 2" x 3" wood rails, 4' long		10	1.600		1,175	56		1,231	1,375
8' long		7	2.286		1,425	80		1,505	1,700
3" x 8" wood plank, 4' long		10	1.600		1,175	56		1,231	1,375
8' long		7	2.286		1,425	80		1,505	1,700
Backless, 4" x 4" wood plank, 4' square		10	1.600		1,200	56		1,256	1,375
8' long		7	2.286		920	80		1,000	1,125
Aluminum pedestals, with backs, aluminum slats, 8' long		8	2		440	70		510	595
15' long		5	3.200		440	112		552	660
Portable, aluminum slats, 8' long		8	2		440	70		510	595
15' long		5	3.200		480	112		592	705
Cast iron pedestals, back & arms, wood slats, 4' long		8	2		370	70		440	515

12 93 Site Furnishings

12 93 43 – Site Seating and Tables

12 93 43.13 Site Seating		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total
							Labor	Equipment		
0820	8' long	2 Clab	5	3.200	Ea.	1,025	112		1,137	
0840	Backless, wood slats, 4' long		8	2		455	70		525	
0860	8' long		5	3.200		1,075	112		1,187	
1700	Steel frame, fir seat, 10' long		10	1.600		325	56		381	

Estimating Tips

General

Items and systems in this division are usually estimated, purchased, supplied, and installed as a unit by one or more subcontractors. The estimator must ensure that all pieces are operating from the same set of specifications and assumptions, and that all necessary items are estimated and will be provided. Many times the complex items and systems are covered, but the more common ones, such as excavation or a crane, are overlooked for the very reason that everyone assumes nobody would miss them. The estimator should be the central person and be able to ensure that all systems are complete.

Another area where problems can develop in this division is at the interface between systems. The estimator must ensure, for instance, that anchor bolts, nuts, and washers are estimated and included for

the air-supported structures and pre-engineered buildings to be bolted to their foundations.

Utility supply is a common area where essential items or pieces of equipment can be missed or overlooked due to the fact that each subcontractor may feel it is another's responsibility. The estimator should also be aware of certain items which may be supplied as part of a package but installed by others, and ensure that the installing contractor's estimate includes the cost of installation. Conversely, the estimator must also ensure that items are not costed by two different subcontractors, resulting in an inflated overall estimate.

13 30 00 Special Structures

- The foundations and floor slab, as well as rough mechanical and electrical, should be estimated, as this work is required for the assembly and erection of the structure.

Generally, as noted in the book, the pre-engineered building comes as a shell. Pricing is based on the size and structural design parameters stated in the reference section. Additional features, such as windows and doors with their related structural framing, must also be included by the estimator. Here again, the estimator must have a clear understanding of the scope of each portion of the work and all the necessary interfaces.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

13 05 Common Work Results for Special Construction

13 05 05 – Selective Special Construction Demolition

13 05 05.10 Selective Demolition, Air Supported Structures		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
0010 SELECTIVE DEMOLITION, AIR SUPPORTED STRUCTURES							Labor	Equipment	
0020	Tank covers, scrim, dbl. layer, vinyl paly w/hdw., blower & controls								
0050	Round and rectangular	R024119-10	B-2	9000	.004	S.F.		.16	.16
0100	Warehouse structures								
0120	Poly/vinyl fabric, 28 az., incl. tension cables & inflation system		4 Clab	9000	.004	SF Flr.		.13	.13
0150	Reinforced vinyl, 12 az., 3000 S.F.		"	5000	.006			.22	.22
0200	12,000 to 24,000 S.F.		8 Clab	20000	.003			.11	.11
0250	Tedlar vinyl fabric, 28 az. w/liner, to 3000 S.F.		4 Clab	5000	.006			.22	.22
0300	12,000 to 24,000 S.F.		8 Clab	20000	.003			.11	.11
0350	Greenhouse/shelter, waven polyethylene with liner								
0400	3000 S.F.		4 Clab	5000	.006	SF Flr.		.22	.22
0450	12,000 to 24,000 S.F.		8 Clab	20000	.003			.11	.11
0500	Tennis/gymnasium, paly/vinyl fabric, 28 az., incl. thermal liner		4 Clab	9000	.004			.13	.13
0600	Stadium/convention center, teflon coated fiberglass, incl. thermal liner		9 Clab	40000	.002			.06	.06
0700	Doors, air lock, 15' lang, 10' x 10'		2 Carp	1.50	10.667	Ea.	470		470
0720	15' x 15'			.80	20		880		880
0750	Revolving personnel door, 6' dia. x 6'-6" high			1.50	10.667		470		470

13 05 05.20 Selective Demolition, Garden Houses

0010	SELECTIVE DEMOLITION, GARDEN HOUSES	R024119-10							
0020	Prefab, wood, excl foundation, average		2 Clab	400	.040	SF Flr.	1.40		1.40

13 05 05.25 Selective Demolition, Geodesic Domes

0010	SELECTIVE DEMOLITION, GEODESIC DOMES								
0050	Shell only, interlocking plywood panels, 30' diameter		F-5	3.20	10	Ea.	445		445
0060	34' diameter			2.30	13.913		620		620
0070	39' diameter			2	16		715		715
0080	45' diameter		F-3	2.20	18.182		815	278	1,093
0090	55' diameter			2	20		895	305	1,200
0100	60' diameter			2	20		895	305	1,200
0110	65' diameter			1.60	25		1,125	385	1,510

13 05 05.30 Selective Demolition, Greenhouses

0010	SELECTIVE DEMOLITION, GREENHOUSES	R024119-10							
0020	Resi-type, free standing, excl. foundations, 9' lang x 8' wide		2 Clab	160	.100	SF Flr.	3.51		3.51
0030	9' lang x 11' wide			170	.094		3.30		3.30
0040	9' lang x 14' wide			220	.073		2.55		2.55
0050	9' lang x 17' wide			320	.050		1.76		1.76
0060	Lean-to type, 4' wide			64	.250		8.80		8.80
0070	7' wide			120	.133		4.68		4.68
0080	Geodesic hemisphere, 1/8" plexiglass glazing, 8' diam.			4	4	Ea.	140		140
0090	24' diam.			.80	20		700		700
0100	48' diam.			.40	40		1,400		1,400

13 05 05.35 Selective Demolition, Hangars

0010	SELECTIVE DEMOLITION, HANGARS								
0020	T type hangars, prefab, steel, galv roof & walls, incl doors, excl fndtn		F-2	2550	.022	SF Flr.	1.06	.59	1.65
0030	Circular type, prefab, steel frame, plastic skin, incl foundation, 80' diam		"	.50	112	Total	5,400	3,000	8,400

13 05 05.45 Selective Demolition, Lightning Protection

0010	SELECTIVE DEMOLITION, LIGHTNING PROTECTION								
0020	Air terminal & base, copper, 3/8" diam. x 10", to 75' h		1 Clab	16	.500	Ea.	17.55		17.55
0030	1/2" diam. x 12", over 75' h			16	.500		17.55		17.55
0050	Aluminum, 1/2" diam. x 12", to 75' h			16	.500		17.55		17.55
0060	5/8" diam. x 12", over 75' h			16	.500		17.55		17.55
0070	Cable, copper, 220 lb. per thousand feet, to 75' high			640	.013	L.F.	.44		.44

05 Common Work Results for Special Construction

5 05 – Selective Special Construction Demolition

05.45 Selective Demolition, Lightning Protection	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
375 lb. per thousand feet, over 75' high	1 Clab	460	.017	L.F.		.61		.61	.94
Aluminum, 101 lb. per thousand feet, to 75' high		560	.014			.50		.50	.77
199 lb. per thousand feet, over 75' high		480	.017	▼		.59		.59	.90
Arrester, 175 V AC, to ground		16	.500	Ea.		17.55		17.55	27
650 V AC, to ground	▼	13	.615	"		21.50		21.50	33

05.50 Selective Demolition, Pre-Engineered Steel Buildings

SELECTIVE DEMOLITION, PRE-ENGINEERED STEEL BUILDINGS									
Pre-engd. steel bldgs., rigid frame, clear span & multi past, excl. salvage									
3,500 to 7,500 S.F.	L-10	1000	.024	SF Flr.		1.19	.61	1.80	2.69
7,501 to 12,500 S.F.		1500	.016			.79	.41	1.20	1.80
12,500 S.F. or greater	▼	1650	.015	▼		.72	.37	1.09	1.63
Pre-engd. steel building components									
Entrance canopy, including frame 4' x 4'	E-24	8	4	Ea.		195	87	282	430
4' x 8'	"	7	4.571			222	99.50	321.50	495
H.M. doors, self framing, single leaf	2 Skwk	8	2			91		91	140
Double leaf		5	3.200	▼		145		145	225
Gutter, eave type		600	.027	L.F.		1.21		1.21	1.87
Sash, single slide, double slide or fixed		24	.667	Ea.		30.50		30.50	47
Skylight, fiberglass, to 30 S.F.		16	1			45.50		45.50	70
Roof vents, circular, 12" to 24" diameter		12	1.333			60.50		60.50	93.50
Continuous, 10' long	▼	8	2	▼		91		91	140
Shelters, aluminum frame									
Acrylic glozing, 3' x 9' x 8' high	2 Skwk	2	8	Ea.		365		365	560
9' x 12' x 8' high	"	1.50	10.667	"		485		485	750

05.60 Selective Demolition, Silos

SELECTIVE DEMOLITION, SILOS									
Conc stove, indstnl, conical/sloping bott, excl fndtn, 12' diam., 35' h	E-24	.18	177	Ea.		8,650	3,875	12,525	19,200
16' diam., 45' h		.12	266			13,000	5,800	18,800	28,700
25' diam., 75' h	▼	.08	400			19,500	8,725	28,225	43,100
Steel, factory fabricated, 30,000 gal. cop, painted or epoxy lined	L-5	2	28	▼		1,375	350	1,725	2,800

05.65 Selective Demolition, Sound Control

SELECTIVE DEMOLITION, SOUND CONTROL R024119-10									
Acoustical enclosure, 4" thick walls & ceiling panels, 8 lb./S.F.	3 Corp	144	.167	SF Surf		7.35		7.35	11.30
10.5 lb./S.F.		128	.188			8.25		8.25	12.70
Reverb chamber, parallel walls, 4" thick		120	.200			8.80		8.80	13.55
Skewed walls, parallel roof, 4" thick		110	.218			9.60		9.60	14.80
Skewed walls/roof, 4" layer/air space		96	.250			11.05		11.05	16.95
Sound-absorbing panels, pointed metal, 2'-6" x 8', under 1,000 S.F.		430	.056			2.46		2.46	3.79
Over 1,000 S.F.	▼	480	.050			2.21		2.21	3.39
Flexible transparent curtain, clear	3 Shee	430	.056			2.91		2.91	4.44
50% clear, 50% foam		430	.056			2.91		2.91	4.44
25% clear, 75% foam		430	.056			2.91		2.91	4.44
100% foam	▼	430	.056	▼		2.91		2.91	4.44
Audio-masking sys., incl. speakers, amplif., signal gntr.									
Ceiling mounted, 5,000 S.F.	2 Elec	4800	.003	S.F.		.17		.17	.26
10,000 S.F.		5600	.003			.15		.15	.22
Plenum mounted, 5,000 S.F.		7600	.002			.11		.11	.16
10,000 S.F.	▼	8800	.002	▼		.09		.09	.14

5 05.70 Selective Demolition, Special Purpose Rooms

SELECTIVE DEMOLITION, SPECIAL PURPOSE ROOMS R024119-10									
Audiometric rooms, under 500 S.F. surface	4 Corp	200	.160	SF Surf		7.05		7.05	10.85
Over 500 S.F. surface	"	240	.133	"		5.90		5.90	9.05

13 05 Common Work Results for Special Construction

13 05 05 – Selective Special Construction Demolition

13 05 05.70 Selective Demolition, Special Purpose Rooms		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. Dem.
							Labor	Equipment		
0200	Clean rooms, 12' x 12' soft wall, class 100	1 Carp	.30	26.667	Eq.		1,175		1,175	1,175
0210	Class 1000		.30	26.667			1,175		1,175	1,175
0220	Class 10,000		.35	22.857			1,000		1,000	1,000
0230	Class 100,000		.35	22.857			1,000		1,000	1,000
0300	Darkrooms, shell complete, 8' high	2 Carp	220	.073	SF Flr.		3.21		3.21	3.21
0310	12' high		110	.145	"		6.40		6.40	6.40
0350	Darkrooms doors, mini-cylindrical, revolving		4	4	Eq.		176		176	176
0400	Music room, practice modular		140	.114	SF Surf		5.05		5.05	5.05
0500	Refrigeration structures and finishes									
0510	Wall finish, 2 coat portland cement plaster, 1/2" thick	1 Clab	200	.040	S.F.		1.40		1.40	1.40
0520	Fiberglass panels, 1/8" thick		400	.020			.70		.70	.70
0530	Ceiling finish, polystyrene plastic, 1" to 2" thick		500	.016			.56		.56	.56
0540	4" thick		450	.018			.62		.62	.62
0550	Refrigerator, prefab aluminum walk-in, 7'-6" high, 6' x 6' OD	2 Carp	100	.160	SF Flr.		7.05		7.05	7.05
0560	10' x 10' OD		160	.100			4.41		4.41	4.41
0570	Over 150 S.F.		200	.080			3.53		3.53	3.53
0600	Sauna, prefabricated, including heater & controls, 7' high, to 30 S.F.		120	.133			5.90		5.90	5.90
0610	To 40 S.F.		140	.114			5.05		5.05	5.05
0620	To 60 S.F.		175	.091			4.03		4.03	4.03
0630	To 100 S.F.		220	.073			3.21		3.21	3.21
0640	To 130 S.F.		250	.064			2.82		2.82	2.82
0650	Steam bath, heater, timer, head, single, to 140 C.F.	1 Plum	2.20	3.636	Eq.		199		199	199
0660	To 300 C.F.		2.20	3.636			199		199	199
0670	Steam bath, comm. size, w/blow-down assembly, to 800 C.F.		1.80	4.444			243		243	243
0680	To 2500 C.F.		1.60	5			273		273	273
0690	Steam bath, comm. size, multiple, for motels, apts, 500 C.F., 2 baths		2	4			218		218	218
0700	1,000 C.F., 4 baths		1.40	5.714			310		310	310

13 05 05.75 Selective Demolition, Storage Tanks

13 05 05.75 SELECTIVE DEMOLITION, STORAGE TANKS										
0010	STEEL TANK, SINGLE WALL, ABOVE GROUND, NOT INCL. FDN., PUMPS OR PIPING									
0500	Steel tank, single wall, above ground, not incl. fdn., pumps or piping									
0510	Single wall, 275 gallon	R024119-10	Q-1	3	5.333	Eq.	262		262	262
0520	550 thru 2,000 gallon		B-34P	2	12		545	299	844	1,139
0530	5,000 thru 10,000 gallon		B-34Q	2	12		550	580	1,130	1,400
0540	15,000 thru 30,000 gallon		B-34S	2	16		780	1,750	2,530	3,010
0600	Steel tank, double wall, above ground not incl. fdn., pumps & piping									
0620	500 thru 2,000 gallon		B-34P	2	12	Eq.	545	299	844	1,139

13 05 05.85 Selective Demolition, Swimming Pool Equip

13 05 05.85 SELECTIVE DEMOLITION, SWIMMING POOL EQUIP										
0010	STEEL TANK, DOUBLE WALL, ABOVE GROUND NOT INCL. FDN., PUMPS & PIPING									
0020	Diving stand, stainless steel, 3 meter	2 Clab	3	5.333	Eq.		187		187	187
0030	1 meter		5	3.200			112		112	112
0040	Diving board, 16' long, aluminum		5.40	2.963			104		104	104
0050	Fiberglass		5.40	2.963			104		104	104
0070	Ladders, heavy duty, stainless steel, 2 tread		14	1.143			40		40	40
0080	4 tread		12	1.333			47		47	47
0090	Lifeguard chair, stainless steel, fixed		5	3.200			112		112	112
0100	Slide, tubular, fiberglass, aluminum handrails & ladder, 5', straight		4	4			140		140	140
0110	8', curved		6	2.667			93.50		93.50	93.50
0120	10', curved		3	5.333			187		187	187
0130	12' straight, with platform		2.50	6.400			225		225	225
0140	Removable access ramp, stainless steel		4	4			140		140	140
0150	Removable stairs, stainless steel, collapsible		4	4			140		140	140

05 Common Work Results for Special Construction

5 05 – Selective Special Construction Demolition

05.90 Selective Demolition, Tension Structures	Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
SELECTIVE DEMOLITION, TENSION STRUCTURES									
Steel/alum. frame, fabric shell, 60' clear span, 6,000 S.F.	B-41	2000	.022	SF Flr.		.80	.14	.94	1.38
12,000 S.F.		2200	.020			.73	.13	.86	1.26
80' clear span, 20,800 S.F.		2440	.018			.65	.11	.76	1.14
100' clear span, 10,000 S.F.	L-5	4350	.013			.64	.16	.80	1.29
26,000 S.F.	"	4600	.012			.60	.15	.75	1.22

05.95 Selective Demo, X-Ray/Radio Freq Protection

SELECTIVE DEMO, X-RAY/RADIO FREQ PROTECTION									
Shielding lead, lined door frame, excl. hdwe., 1/16" thick	1 Clab	4.80	1.667	Ea.		58.50		58.50	90
Lead sheets, 1/16" thick	R0241119-10 2 Clab	270	.059	S.F.		2.08		2.08	3.20
1/8" thick		240	.067			2.34		2.34	3.60
Lead shielding, 1/4" thick		270	.059			2.08		2.08	3.20
1/2" thick		240	.067			2.34		2.34	3.60
Lead glass, 1/4" thick, 2.0 mm LE, 12" x 16"	2 Glaz	16	1	Ea.		43		43	65
24" x 36"		8	2			85.50		85.50	130
36" x 60"		4	4			171		171	259
Lead glass window frame, with 1/16" lead & voice passage, 36" x 60"		4	4			171		171	259
Lead glass window frame, 24" x 36"		8	2			85.50		85.50	130
Lead gypsum board, 5/8" thick with 1/16" lead	2 Clab	320	.050	S.F.		1.76		1.76	2.70
1/8" lead		280	.057			2.01		2.01	3.09
1/32" lead		400	.040			1.40		1.40	2.16
Butt joints, 1/8" lead or thicker, 2" x 7' long batten strip		480	.033	Ea.		1.17		1.17	1.80
X-ray protection, average radiography room, up to 300 S.F., 1/16" lead, min		.50	32	Total		1,125		1,125	1,725
Maximum		.30	53.333			1,875		1,875	2,875
Deep therapy X-ray room, 250 kV cap, up to 300 S.F., 1/4" lead, min		.20	80			2,800		2,800	4,325
Maximum		.12	133			4,675		4,675	7,200
Radio frequency shielding, prefab ar screen-type copper or steel, minimum		360	.044	SF Surf		1.56		1.56	2.40
Average		310	.052			1.81		1.81	2.79
Maximum		290	.055			1.94		1.94	2.98

11 Swimming Pools

1 13 – Below-Grade Swimming Pools

13.50 Swimming Pools

SWIMMING POOLS Residential in-ground, vinyl lined, concrete									
Sides including equipment, sand bottom	B-52	300	.187	SF Surf	17.55	7.60	1.84	26.99	33
Metal or polystyrene sides	R131113-20 B-14	410	.117		14.70	4.34	.81	19.85	23.50
Add far vermiculite bottom					1.12			1.12	1.23
Gunite bottom and sides, white plaster finish									
12' x 30' pool	B-52	145	.386	SF Surf	32.50	15.75	3.82	52.07	64
16' x 32' pool		155	.361		29.50	14.75	3.57	47.82	59
20' x 40' pool		250	.224		26.50	9.15	2.21	37.86	45.50
Concrete bottom and sides, tile finish									
12' x 30' pool	B-52	80	.700	SF Surf	33	28.50	6.90	68.40	87.50
16' x 32' pool		95	.589		27.50	24	5.80	57.30	73.50
20' x 40' pool		130	.431		21.50	17.60	4.26	43.36	55.50
Motel, gunite with plaster finish, incl. medium capacity filtration & chlorination	B-52	115	.487	SF Surf	40	19.85	4.81	64.66	80.50
Municipal, gunite with plaster finish, incl. high capacity filtration & chlorination	B-52	100	.560	SF Surf	52	23	5.55	80.55	98
Add far formed gutters				L.F.	76.50			76.50	84

13 11 Swimming Pools

13 11 13 – Below-Grade Swimming Pools

13 11 13.50 Swimming Pools		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
1360	Add for stainless steel gutters				L.F.	226			226
1600	For water heating system, see Section 23 52 28.10								
1700	Filtration and deck equipment only, as % of total				Total				20%
1800	Deck equipment, rule of thumb, 20' x 40' pool				SF Pool				1.18
1900	5000 S.F. pool				"				1.73
3000	Painting pools, preparation + 3 coats, 20' x 40' pool, epoxy	2 Pard	.33	48.485	Total	1,700	1,850		3,550
3100	Rubber base paint, 18 gallons	"	.33	48.485		1,100	1,850		2,950
3500	42' x 82' pool, 75 gallons, epoxy paint	3 Pard	.14	171		7,150	6,550		13,700
3600	Rubber base paint	"	.14	171		4,500	6,550		11,050

13 11 46 – Swimming Pool Accessories

13 11 46.50 Swimming Pool Equipment

0010 SWIMMING POOL EQUIPMENT									
0020	Diving stand, stainless steel, 3 meter	2 Corp	.40	40	Ea.	11,100	1,775		12,875
0300	1 meter		2.70	5.926		6,450	261		6,711
0600	Diving boards, 16' long, aluminum		2.70	5.926		3,725	261		3,986
0700	Fiberglass		2.70	5.926		2,700	261		2,961
1200	Ladders, heavy duty, stainless steel, 2 tread		7	2.286		675	101		776
1500	4 tread		6	2.667		870	118		988
1800	Lifeguard chair, stainless steel, fixed		2.70	5.926		3,375	261		3,636
1900	Portable					2,750			2,750
2100	Lights, underwater, 12 volt, with transformer, 300 watt	1 Elec	1	8		274	410		684
2200	110 volt, 500 watt, standard		1	8		208	410		618
2400	Low water cutoff type		1	8		257	410		667
2800	Heaters, see Section 23 52 28.10								
3000	Pool covers, reinforced vinyl	3 Clab	1800	.013	S.F.	.35	.47		.82
3050	Automatic, electric								8.75
3100	Vinyl water tube	3 Clab	3200	.008		.50	.26		.76
3200	Maximum	"	3000	.008		.63	.28		.91
3250	Sealed air bubble polyethylene solar blanket, 16 mils					.36			.36
3300	Slides, tubular, fiberglass, aluminum handrails & ladder, 5'-0", straight	2 Corp	1.60	10	Ea.	3,300	440		3,740
3320	8'-0", curved		3	5.333		6,750	235		6,985
3400	10'-0", curved		1	16		30,100	705		30,805
3420	12'-0", straight with platform		1.20	13.333		13,700	590		14,290
4500	Hydraulic lift, movable pool bottom, single ram								
4520	Under 1,000 S.F. area	L-9	72	.500	S.F.	130	20		150
4600	Four ram lift, over 1,000 S.F.	"	109	.330	"	105	13.30		118.30
5000	Removable access ramp, stainless steel	2 Clab	2	8	Ea.	10,500	281		10,781

13 17 Tubs and Pools

13 17 33 – Whirlpool Tubs

13 17 33.10 Whirlpool Bath

0010 WHIRLPOOL BATH									
6000	Whirlpool, bath with vented overflow, molded fiberglass								
6100	66" x 36" x 24"	Q-1	1	16	Ea.	3,100	785		3,885

18 Ice Rinks

8 13 - Ice Rink Floor Systems

13.50 Ice Skating

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
ICE SKATING Equipment incl. refrigeration, plumbing & cooling									
coils & concrete slab, 85' x 200' rink									
55° system, 5 mos., 100 ton				Total	575,000			575,000	632,500
90° system, 12 mos., 135 ton				"	650,000			650,000	715,000
Subsoil heating system (recycled from compressor), 85' x 200'	Q-7	.27	118	Eq.	40,000	6,275		46,275	53,500
Subsoil insulation, 2 lb. polystyrene with vapor barrier, 85' x 200'	2 Corp	.14	114	"	30,000	5,050		35,050	40,800

8 16 - Ice Rink Dasher Boards

16.50 Ice Rink Dasher Boards

ICE RINK DASHER BOARDS									
Dasher boards, 1/2" H.D. polyethylene faced steel frame, 3' acrylic screen at sides, 5' acrylic ends, 85' x 200'	F-5	.06	533	Eq.	135,000	23,800		158,800	185,000
Fiberglass & aluminum construction, some sides and ends	"	.06	533	"	155,000	23,800		178,800	207,000

21 Controlled Environment Rooms

21 13 - Clean Rooms

13.50 Clean Room Components

CLEAN ROOM COMPONENTS									
Clean room, soft wall, 12' x 12', Class 100	1 Corp	.18	44.444	Eq.	16,400	1,950		18,350	21,000
Class 1,000		.18	44.444		13,200	1,950		15,150	17,600
Class 10,000		.21	38.095		11,600	1,675		13,275	15,400
Class 100,000	▼	.21	38.095	▼	10,900	1,675		12,575	14,600
Ceiling grid support, slotted channel struts 4'-0" O.C., ea. way				S.F.				5.90	6.50
Ceiling panel, vinyl coated foil on mineral substrate									
Sealed, non-perforated				S.F.				1.27	1.40
Ceiling panel seal, silicone sealant, 150 L.F./gol.	1 Corp	150	.053	L.F.	.30	2.35		2.65	3.95
Two sided adhesive tape	"	240	.033	"	.13	1.47		1.60	2.40
Clips, one per panel				Eq.	1.04			1.04	1.14
HEPA filter, 2' x 4', 99.97% eff., 3" dp beveled frame (silicone seal)					455			455	500
6" deep skirted frame (channel seal)					390			390	430
99.99% efficient, 3" deep beveled frame (silicone seal)					530			530	585
6" deep skirted frame (channel seal)					405			405	445
99.99% efficient, 3" deep beveled frame (silicone seal)					600			600	660
6" deep skirted frame (channel seal)				▼	420			420	465
Wall panel systems, including channel strut framing									
Polyester coated aluminum, particle board				S.F.				18.20	20
Porcelain coated aluminum, particle board				▼				32	35
Wall panel support, slotted channel struts, to 12' high				▼				16.35	18

21 26 - Cold Storage Rooms

26.50 Refrigeration

REFRIGERATION									
Curbs, 12" high, 4" thick, concrete	2 Corp	58	.276	L.F.	4.61	12.15		16.76	24
Doors, see Section 08 34 13.10									
Finishes, 2 coat portland cement plaster, 1/2" thick	1 Plas	48	.167	S.F.	1.27	6.75		8.02	11.45
For galvanized reinforcing mesh, odd	1 Lath	335	.024		.84	.94		1.78	2.30
3/16" thick lotex cement	1 Plos	88	.091		2.16	3.67		5.83	7.90
For glass cloth reinforced ceilings, odd	"	450	.018		.52	.72		1.24	1.64
Fiberglass panels, 1/8" thick	1 Corp	149.45	.054		2.86	2.36		5.22	6.80
Polystyrene, plastic finish ceiling, 1" thick		274	.029		2.64	1.29		3.93	4.88
2" thick		274	.029		3.01	1.29		4.30	5.30
4" thick	▼	219	.037	▼	3.34	1.61		4.95	6.15

13 21 Controlled Environment Rooms

13 21 26 – Cold Storage Rooms

13 21 26.50 Refrigeration

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
3800	Floors, concrete, 4" thick	1 Cefi	93	.086	S.F.	1.32	3.64		4.96
3900	6" thick	"	85	.094	↓	2.07	3.99		6.06
4000	Insulation, 1" to 6" thick, cork				B.F.	1.22			1.22
4100	Urethane					.51			.51
4300	Polystyrene, regular					.50			.50
4400	Beed board				↓	.28			.28
4600	Instollation of above, odd per layer	2 Corp	657.60	.024	S.F.	.40	1.07		1.47
4700	Wall and ceiling juncture		298.90	.054	L.F.	1.97	2.36		4.33
4900	Partitions, galvanized sandwich panels, 4" thick, stock		219.20	.073	S.F.	8.25	3.22		11.47
5000	Aluminum or fiberglass	↓	219.20	.073	"	9.05	3.22		12.27
5200	Prefab walk-in, 7'-6" high, aluminum, incl. door & floors,								
5210	not incl. partitions or refrigeration, 6' x 6' O.D. nominal	2 Corp	54.80	.292	SF Flr.	148	12.90		160.90
5500	10' x 10' O.D. nominal		82.20	.195		119	8.60		127.60
5700	12' x 14' O.D. nominal		109.60	.146		107	6.45		113.45
5800	12' x 20' O.D. nominal	↓	109.60	.146		93	6.45		99.45
6100	For 8'-6" high, odd					5%			
6300	Rule of thumb for complete units, w/o doors & refrigeration, cooler	2 Corp	146	.110		134	4.83		138.83
6400	Freezer		109.60	.146	↓	158	6.45		164.45
6600	Shelving, plated or galvanized, steel wire type		360	.044	SF Hor.	11.75	1.96		13.71
6700	Slot shelf type	↓	375	.043		14.45	1.88		16.33
6900	For stainless steel shelving, odd				↓	300%			
7000	Vapor barrier, on wood wolls	2 Corp	1644	.010	S.F.	.17	.43		.60
7200	On masonry wolls	"	1315	.012	"	.44	.54		.98
7500	For air curtain doors, see Section 23 34 33.10								

13 21 48 – Sound-Conditioned Rooms

13 21 48.10 Anechoic Chambers

0010	ANECHOIC CHAMBERS Standard units, 7' ceiling heights								
0100	Area for pricing is net inside dimensions								
0300	200 cycles per second cutoff, 25 S.F. floor area				SF Flr.	1,600			1,600
0400	50 S.F.								1,050
0600	75 S.F.								1,000
0700	100 S.F.					1,200			1,200
0900	For 150 cycles per second cutoff, add to 100 S.F. room								
1000	For 100 cycles per second cutoff, add to 100 S.F. room				↓				

13 21 48.15 Audiometric Rooms

0010	AUDIOMETRIC ROOMS								
0020	Under 500 S.F. surface	4 Corp	98	.327	SF Surf	51.50	14.40		65.90
0100	Over 500 S.F. surface	"	120	.267	"	49	11.75		60.75

13 21 53 – Darkrooms

13 21 53.50 Darkrooms

0010	DARKROOMS								
0020	Shell, complete except for door, 64 S.F., 8' high	2 Corp	128	.125	SF Flr.	56	5.50		61.50
0100	12' high		64	.250		71.50	11.05		82.55
0500	120 S.F. floor, 8' high		120	.133		39	5.90		44.90
0600	12' high		60	.267		53.50	11.75		65.25
0800	240 S.F. floor, 8' high		120	.133		28	5.90		33.90
0900	12' high		60	.267	↓	40	11.75		51.75
1200	Mini-cylindrical, revolving, unlined, 4' diameter		3.50	4.571	Eq.	2,350	202		2,552
1400	5'-6" diameter	↓	2.50	6.400		5,600	282		5,882
1600	Add for lead lining, inner cylinder, 1/32" thick					1,650			1,650
1700	1/16" thick					4,450			4,450

21 Controlled Environment Rooms

153 - Darkrooms

53.50 Darkrooms	Daily Labor-Hours			Unit	Material	2012 Bare Costs		Total	Total Incl O&P
	Crew	Output	Hours			Labor	Equipment		
Add for lead lining, inner and outer cylinder, 1/32" thick				Ea.	3,050			3,050	3,375
1/16" thick				↓	6,825			6,825	7,500
For darkroom door, see Section 08 34 36.10									

156 - Music Rooms

56.50 Music Rooms									
MUSIC ROOMS									
Practice room, modular, perforated steel, under 500 S.F.	2 Carp	70	.229	SF Surf	31.50	10.10		41.60	50
Over 500 S.F.	"	80	.200	"	26.50	8.80		35.30	43

24 Special Activity Rooms

2416 - Saunas

16.50 Saunas and Heaters									
SAUNAS AND HEATERS									
Prefabricated, incl. heater & controls, 7' high, 6' x 4', C/C	L-7	2.20	12.727	Ea.	5,125	540		5,665	6,475
6' x 4', C/P		2	14		4,300	595		4,895	5,650
6' x 5', C/C		2	14		5,225	595		5,820	6,675
6' x 5', C/P		2	14		4,450	595		5,045	5,825
6' x 6', C/C		1.80	15.556		5,550	665		6,215	7,125
6' x 6', C/P		1.80	15.556		4,750	665		5,415	6,250
6' x 9', C/C		1.60	17.500		6,875	745		7,620	8,700
6' x 9', C/P		1.60	17.500		6,425	745		7,170	8,225
8' x 12', C/C		1.10	25.455		11,200	1,075		12,275	14,000
8' x 12', C/P		1.10	25.455		9,900	1,075		10,975	12,600
8' x 8', C/C		1.40	20		8,525	850		9,375	10,700
8' x 8', C/P		1.40	20		7,750	850		8,600	9,825
8' x 10', C/C		1.20	23.333		9,450	995		10,445	11,900
8' x 10', C/P		1.20	23.333		8,500	995		9,495	10,900
10' x 12', C/C		1	28		11,800	1,200		13,000	14,800
10' x 12', C/P	↓	1	28		10,300	1,200		11,500	13,200
Door only, cedar, 2' x 6', with tempered insulated glass window	2 Carp	3.40	4.706		620	208		828	1,000
Prehung, incl. jambs, pulls & hardware	"	12	1.333		620	59		679	775
Heaters only (incl. above), wall mounted, to 200 C.F.					615			615	675
To 300 C.F.					795			795	875
Floor standing, to 720 C.F., 10,000 watts, w/controls	1 Elec	3	2.667		2,100	137		2,237	2,500
To 1,000 C.F., 16,000 watts	"	3	2.667	↓	2,700	137		2,837	3,150

2426 - Steam Baths

26.50 Steam Baths and Components									
STEAM BATHS AND COMPONENTS									
Heater, timer & head, single, to 140 C.F.	1 Plum	1.20	6.667	Ea.	2,100	365		2,465	2,850
To 300 C.F.		1.10	7.273		2,425	395		2,820	3,275
Commercial size, with blow-down assembly, to 800 C.F.		.90	8.889		7,800	485		8,285	9,300
To 2500 C.F.	↓	.80	10		8,775	545		9,320	10,500
Multiple, motels, apts., 2 baths, w/blow-down assm., 500 C.F.	Q-1	1.30	12.308		5,900	605		6,505	7,400
4 baths	"	.70	22.857		7,450	1,125		8,575	9,900
Conversion unit for residential tub, including door				↓	4,100			4,100	4,500

13 28 Athletic and Recreational Special Construction

13 28 33 – Athletic and Recreational Court Walls

13 28 33.50 Sport Court		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	
SPORT COURT							Labor	Equipment		
0010	Floors, No. 2 & better maple, 25/32" thick				SF Flr.				6.05	
0100	Walls, laminated plastic bonded to galv. steel studs				SF Wall				7.70	
0150	Laminated fiberglass surfacing, minimum								1.91	
0180	Maximum				▼				2.15	
0300	Squash, regulation court in existing building, minimum				Court	36,800			36,800	40.4
0400	Maximum				"	41,000			41,000	45.1
0450	Rule of thumb for components:									
0470	Walls	3 Carp	.15	160	Court	11,000	7,050		18,050	23.1
0500	Floor	"	.25	96		8,725	4,225		12,950	16.1
0550	Lighting	2 Elec	.60	26.667		2,100	1,375		3,475	4.1
0600	Handball, racquetball court in existing building, minimum	C-1	.20	160		39,800	6,700		46,500	54.1
0800	Maximum	"	.10	320		43,100	13,400		56,500	68.0
0900	Rule of thumb for components: walls	3 Carp	.12	200		12,600	8,825		21,425	27.5
1000	Floor	▼	.25	96		8,725	4,225		12,950	16.1
1100	Ceiling		.33	72.727		4,200	3,200		7,400	9.5
1200	Lighting	2 Elec	.60	26.667	▼	2,200	1,375		3,575	4.4

13 31 Fabric Structures

13 31 13 – Air-Supported Fabric Structures

13 31 13.09 Air Supported Tank Covers

0010	AIR SUPPORTED TANK COVERS, vinyl polyester									
0100	Scrim, double layer, with hardware, blower, standby & controls									
0200	Round, 75' diameter	B-2	4500	.009	S.F.	10.10	.32		10.42	
0300	100' diameter		5000	.008		9.20	.28		9.48	
0400	150' diameter		5000	.008		7.30	.28		7.58	
0500	Rectangular, 20' x 20'		4500	.009		23	.32		23.32	
0600	30' x 40'		4500	.009		23	.32		23.32	
0700	50' x 60'	▼	4500	.009		23	.32		23.32	
0800	For single wall construction, deduct, minimum					.78			.78	
0900	Maximum					2.31			2.31	
1000	For maximum resistance to atmosphere or cold, add					1.13			1.13	
1100	For average shipping charges, add				Total	1,950			1,950	2.7

13 31 13.13 Single-Walled Air-Supported Structures

0010	SINGLE-WALLED AIR-SUPPORTED STRUCTURES R133113-10									
0020	Site preparation, incl. anchor placement and utilities	B-11B	1000	.016	SF Flr.	1.15	.64	.27	2.06	
0030	For concrete, see Section 03 30 53.40									
0050	Warehouse, polyester/vinyl fabric, 28 oz., over 10 yr. life, welded									
0060	Seams, tension cables, primary & auxiliary inflation system, airlock, personnel doors and liner									
0070	5,000 S.F.	4 Clab	5000	.006	SF Flr.	25	.22		25.22	
0250	12,000 S.F.	"	6000	.005		17.80	.19		17.99	
0400	24,000 S.F.	8 Clab	12000	.005		12.55	.19		12.74	
0500	50,000 S.F.	"	12500	.005	▼	11.60	.18		11.78	
0700	12 oz. reinforced vinyl fabric, 5 yr. life, sewn seams, accordion door, including liner									
0750	3000 S.F.	4 Clab	3000	.011	SF Flr.	12	.37		12.37	
0800	12,000 S.F.	"	6000	.005		10.20	.19		10.39	
0850	24,000 S.F.	8 Clab	12000	.005		8.65	.19		8.84	
0950	Deduct for single layer					1.02			1.02	
1000	Add for welded seams				▼	1.01			1.01	

31 Fabric Structures

113 - Air-Supported Fabric Structures

13.13 Single-Walled Air-Supported Structures	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
Add for double layer, welded seams included				SF Flr.	2.08			2.08	2.29
Tedlar/vinyl fabric, 28 oz., with liner, over 10 yr. life, incl. overhead and personnel doors									
3000 S.F.	4 Clab	3000	.011	SF Flr.	24	.37		24.37	27
12,000 S.F.	"	6000	.005		17.05	.19		17.24	19.05
24,000 S.F.	8 Clab	12000	.005		13.15	.19		13.34	14.80
Deduct for single layer					1.44			1.44	1.58
Greenhouse/shelter, woven polyethylene with liner, 2 yr. life, sewn seams, including doors									
3000 S.F.	4 Clab	3000	.011	SF Flr.	6.60	.37		6.97	7.85
12,000 S.F.	"	6000	.005		6.70	.19		6.89	7.70
24,000 S.F.	8 Clab	12000	.005		5.60	.19		5.79	6.45
Deduct for single layer					.63			.63	.69
Tennis/gymnasium, polyester/vinyl fabric, 28 oz., over 10 yr. life, including thermal liner, heat and lights									
7,200 S.F.	4 Clab	6000	.005	SF Flr.	23	.19		23.19	26
13,000 S.F.	"	6500	.005		17.80	.17		17.97	19.85
Over 24,000 S.F.	8 Clab	12000	.005		16.25	.19		16.44	18.20
For low temperature conditions, add					1.13			1.13	1.24
For average shipping charges, add				Total	5,600			5,600	6,150
Thermal liner, translucent reinforced vinyl				SF Flr.	1.13			1.13	1.24
Metalized mylar fabric and mesh, double liner				"	2.31			2.31	2.54
Stadium/convention center, teflon coated fiberglass, heavy weight, over 20 yr. life, incl. thermal liner and heating system									
Minimum	9 Clab	26000	.003	SF Flr.	56.50	.10		56.60	62.50
Maximum	"	19000	.004	"	67.50	.13		67.63	74
Doors, air lock, 15' long, 10' x 10'	2 Corp	.80	20	Ea.	20,200	880		21,080	23,700
15' x 15'	"	.50	32		30,000	1,400		31,400	35,200
For each added 5' length, add					5,375			5,375	5,900
Revolving personnel door, 6' diameter, 6'-6" high	2 Corp	.80	20		15,000	880		15,880	17,900
Double wall, self supporting, shell only, minimum				SF Flr.				19.10	21
Maximum				"				35.50	39

3123 - Tensioned Fabric Structures

123.50 Tension Structures

TENSION STRUCTURES Rigid steel/alum. frame, vinyl coated poly									
Fabric shell, 60" clear span, not incl. foundations or floors									
6,000 S.F.	B-41	1000	.044	SF Flr.	15.15	1.60	.28	17.03	19.45
12,000 S.F.		1100	.040		14.05	1.45	.25	15.75	17.95
80" clear span, 20,800 S.F.	▼	1220	.036		13.90	1.31	.23	15.44	17.55
100" clear span, 10,000 S.F.	L-5	2175	.026		15.35	1.27	.32	16.94	19.50
26,000 S.F.		2300	.024		14.45	1.20	.30	15.95	18.35
36,000 S.F.		2500	.022		14.10	1.11	.28	15.49	17.75
120" clear span, 24,000 S.F.		3000	.019		16.05	.92	.23	17.20	19.55
150" clear span, 30,000 S.F.	▼	6000	.009		17.30	.46	.12	17.88	19.95
200" clear span, 40,000 S.F.	E-6	8000	.016	▼	19.75	.78	.22	20.75	23
For roll-up door, 12' x 14', add	L-2	1	16	Ea.	5,325	620		5,945	6,800
For personnel doors, add, minimum				SF Flr.	5%				
Add, maximum					15%				
For site work, simple foundation, etc., add, minimum								1.25	1.95
Add, maximum				▼				2.75	3.05

13 34 Fabricated Engineered Structures

13 34 13 - Glazed Structures

13 34 13.13 Greenhouses		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Tk Inc
0010	GREENHOUSES , Shell only, stock units, not incl. 2' stub walls,									
0020	foundation, floors, heat or compartments									
0300	Residential type, free standing, 8'-6" long x 7'-6" wide	2 Corp	59	.271	SF Flr.	33	11.95		44.95	
0400	10'-6" wide		85	.188		28	8.30		36.30	
0600	13'-6" wide		108	.148		24.50	6.55		31.05	
0700	17'-0" wide		160	.100		23.50	4.41		27.91	
0900	Lean-to type, 3'-10" wide		34	.471		32.50	21		53.50	
1000	6'-10" wide	▼	58	.276	▼	43.50	12.15		55.65	
1500	Commercial, custom, truss frame, incl. equip., plumbing, elec.,									
1510	benches and controls, under 2,000 S.F., minimum				SF Flr.				27.50	
1550	Maximum					14.45			14.45	
1700	Over 5,000 S.F., minimum					14.60			14.60	
1750	Maximum				▼				27.50	
2000	Institutional, custom, rigid frame, including compartments and									
2010	multi-controls, under 500 S.F., minimum				SF Flr.	45			45	
2050	Maximum					35.50			35.50	
2150	Over 2,000 S.F., minimum					11.70			11.70	
2200	Maximum					59			59	
2400	Concealed rigid frame, under 500 S.F., minimum								82	
2450	Maximum								100	
2550	Over 2,000 S.F., minimum								62	
2600	Maximum								72	
2800	Lean-to type, under 500 S.F., minimum								72.50	
2850	Maximum								109	
3000	Over 2,000 S.F., minimum				▼				40	
3050	Maximum								66.50	
3600	For 1/4" clear plate glass, deduct				SF Surf	3.80			3.80	
3700	For 1/4" tempered glass, add				"	7.85			7.85	
3900	Cooling, 1200 cfm exhaust fan, add				Ea.	239			239	
4000	7850 cfm					900			900	
4200	For heaters, 10 MBH, add					195			195	
4300	60 MBH, add					645			645	
4500	For benches, 2' x 8', add					150			150	
4600	4' x 10', add				▼	220			220	
4800	For controls, add, minimum				Total	210			210	
4900	Maximum				"	700			700	
5100	For humidification equipment, add				Ea.	560			560	
5200	For vinyl shading, add				S.F.	.22			.22	
6000	Geodesic hemisphere, 1/8" plexiglass glazing									
6050	8' diameter	2 Corp	2	8	Ea.	4,950	355		5,305	6.
6150	24' diameter		.35	45.714		11,000	2,025		13,025	15.
6250	48' diameter	▼	.20	80	▼	45,000	3,525		48,525	55.

13 34 13.19 Swimming Pool Enclosures

0010	SWIMMING POOL ENCLOSURES Translucent, free standing									
0020	not including foundations, heat or light									
0200	Economy, minimum	2 Corp	200	.080	SF Hor.	14.80	3.53		18.33	
0300	Maximum		100	.160		45.50	7.05		52.55	
0400	Deluxe, minimum		100	.160		50.50	7.05		57.55	
0600	Maximum	▼	70	.229		227	10.10		237.10	
0700	For motorized roof, 40% opening, solid roof, add					11.70			11.70	
0800	Skylight type roof, add					9.35			9.35	
0900	Air-inflated, including blowers and heaters, minimum				▼				3.18	

34 Fabricated Engineered Structures

34 13 – Glazed Structures

34 13.19 Swimming Pool Enclosures	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Maximum				SF Hor.				6.10	6.70

34 16 – Grandstands and Bleachers

34 16.13 Grandstands

GRANDSTANDS Permanent, municipal, including foundation									
Steel understructure w/aluminum closed deck, minimum				Seat				118	130
Maximum								205	225
Steel, minimum					55			55	60.50
Maximum					110			110	121
Aluminum, extruded, stock design, minimum								63.50	70
Maximum								105	115
Composite, steel, wood and plastic, stock design, minimum					130			130	143
Maximum					260			260	286

34 16.53 Bleachers

BLEACHERS									
Bleachers, outdoor, portable, 3 to 5 tiers, to 300' long, min	2 Swwk	120	.133	Seat	37.50	6.60		44.10	53
Maximum, less than 15' long, prefabricated		80	.200		41.50	9.85		51.35	63
6 to 20 tiers, minimum, up to 300' long		120	.133		70.50	6.60		77.10	89.50
Max., under 15', (highly prefabricated, on wheels)		80	.200		85.50	9.85		95.35	112
Permanent grandstands, wood seat, steel frame, 24" row									
3 to 15 tiers, minimum	2 Swwk	60	.267	Seat	63.50	13.15		76.65	93
Maximum		48	.333		76	16.45		92.45	113
16 to 30 tiers, minimum		60	.267		191	13.15		204.15	234
Average		55	.291		211	14.35		225.35	258
Maximum		48	.333		244	16.45		260.45	299
Seat backs only, 30" row, fiberglass		160	.100		40	4.94		44.94	53
Steel and wood		160	.100		62	4.94		66.94	77

NOTE: overage seating is 1.5' in width

34 19 – Metal Building Systems

34 19.50 Pre-Engineered Steel Buildings

PRE-ENGINEERED STEEL BUILDINGS R133419-10									
Clear span rigid frame, 26 ga. colored roofing and siding									
20' to 29' wide, 10' eave height	E-2	425	.132	SF Flr.	8.50	6.35	3.52	18.37	24
14' eave height		350	.160		9.20	7.70	4.28	21.18	28
16' eave height		320	.175		9.85	8.45	4.68	22.98	30.50
20' eave height		275	.204		10.75	9.85	5.45	26.05	34.50
24' eave height		240	.233		11.85	11.25	6.25	29.35	39
30' to 40' wide, 10' eave height		535	.105		6.55	5.05	2.80	14.40	18.95
14' eave height		450	.124		7.05	6	3.33	16.38	21.50
16' eave height		415	.135		7.50	6.50	3.61	17.61	23.50
20' eave height		360	.156		8.15	7.50	4.16	19.81	26.50
24' eave height		320	.175		8.95	8.45	4.68	22.08	29.50
50' to 100' wide, 10' eave height		770	.073		5.55	3.51	1.94	11	14.25
16' eave height		600	.093		6.40	4.50	2.49	13.39	17.45
20' eave height		490	.114		6.90	5.50	3.06	15.46	20.50
24' eave height		435	.129		7.60	6.20	3.44	17.24	23
Clear span tapered beam frame, 26 ga. colored roofing/siding									
30' to 39' wide, 10' eave height	E-2	535	.105	SF Flr.	7.40	5.05	2.80	15.25	19.90
14' eave height		450	.124		8.20	6	3.33	17.53	23
16' eave height		415	.135		8.60	6.50	3.61	18.71	24.50
20' eave height		360	.156		9.50	7.50	4.16	21.16	28
40' wide, 10' eave height		600	.093		6.60	4.50	2.49	13.59	17.70

13 34 Fabricated Engineered Structures

13 34 19 – Metal Building Systems

13 34 19.50 Pre-Engineered Steel Buildings		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total
							Labor	Equipment		
1800	14' eave height	E-2	510	.110	SF Flr.	7.30	5.30	2.94	15.54	
1900	16' eave height		475	.118		7.60	5.70	3.15	16.45	
2000	20' eave height		415	.135		8.40	6.50	3.61	18.51	
2100	50' to 79' wide, 10' eave height		770	.073		6.20	3.51	1.94	11.65	
2200	14' eave height		675	.083		6.70	4	2.22	12.92	
2300	16' eave height		635	.088		7	4.26	2.36	13.62	
2400	20' eave height		490	.114		7.60	5.50	3.06	16.16	
2410	80' to 100' wide, 10' eave height		935	.060		5.50	2.89	1.60	9.99	
2420	14' eave height		750	.075		6.05	3.60	2	11.65	
2430	16' eave height		685	.082		6.30	3.95	2.19	12.44	
2440	20' eave height		560	.100		6.75	4.83	2.67	14.25	
2460	101' to 120' wide, 10' eave height		950	.059		5.05	2.84	1.58	9.47	
2470	14' eave height		770	.073		5.60	3.51	1.94	11.05	
2480	16' eave height		675	.083		5.95	4	2.22	12.17	
2490	20' eave height	▼	560	.100	▼	6.35	4.83	2.67	13.85	
2500	Single post 2-span frame, 26 ga. colored roofing and siding									
2600	80' wide, 14' eave height	E-2	740	.076	SF Flr.	5.55	3.65	2.02	11.22	
2700	16' eave height		695	.081		5.90	3.89	2.15	11.94	
2800	20' eave height		625	.090		6.40	4.32	2.40	13.12	
2900	24' eave height		570	.098		7	4.74	2.63	14.37	
3000	100' wide, 14' eave height		835	.067		5.40	3.24	1.79	10.43	
3100	16' eave height		795	.070		5.05	3.40	1.88	10.33	
3200	20' eave height		730	.077		6.10	3.70	2.05	11.85	
3300	24' eave height		670	.084		6.75	4.03	2.23	13.01	
3400	120' wide, 14' eave height		870	.064		6.25	3.11	1.72	11.08	
3500	16' eave height		830	.067		5.60	3.26	1.80	10.66	
3600	20' eave height		765	.073		6.10	3.53	1.96	11.59	
3700	24' eave height	▼	705	.079	▼	6.65	3.83	2.12	12.60	
3800	Double post 3-span frame, 26 ga. colored roofing and siding									
3900	150' wide, 14' eave height	E-2	925	.061	SF Flr.	4.43	2.92	1.62	8.97	
4000	16' eave height		890	.063		4.62	3.04	1.68	9.34	
4100	20' eave height		820	.068		5.05	3.30	1.83	10.18	
4200	24' eave height	▼	765	.073	▼	5.55	3.53	1.96	11.04	
4300	Triple post 4-span frame, 26 ga. colored roofing and siding									
4400	160' wide, 14' eave height	E-2	970	.058	SF Flr.	4.35	2.79	1.54	8.68	
4500	16' eave height		930	.060		4.54	2.91	1.61	9.06	
4600	20' eave height		870	.064		4.48	3.11	1.72	9.31	
4700	24' eave height		815	.069		5.10	3.32	1.84	10.26	
4800	200' wide, 14' eave height		1030	.054		4.01	2.62	1.45	8.08	
4900	16' eave height		995	.056		4.15	2.72	1.50	8.37	
5000	20' eave height		935	.060		4.58	2.89	1.60	9.07	
5100	24' eave height	▼	885	.063	▼	5.15	3.05	1.69	9.89	
5200	Accessory items: add to the basic building cost above									
5250	Eave overhang, 2' wide, 26 ga., with soffit	E-2	360	.156	L.F.	30.50	7.50	4.16	42.16	
5300	4' wide, without soffit		300	.187		26.50	9	4.99	40.49	
5350	With soffit		250	.224		38.50	10.80	6	55.30	
5400	6' wide, without soffit		250	.224		34.50	10.80	6	51.30	
5450	With soffit		200	.280	▼	46	13.50	7.50	67	
5500	Entrance canopy, incl. frame, 4' x 4'		25	2.240	Ea.	450	108	60	618	
5550	4' x 8'		19	2.947	"	525	142	79	746	
5600	End wall roof overhang, 4' wide, without soffit		850	.066	L.F.	17.10	3.18	1.76	22.04	
5650	With soffit	▼	500	.112	"	27.50	5.40	2.99	35.89	
5700	Doors, H.M. self-framing, incl. butts, lockset and trim									

34 Fabricated Engineered Structures

34 19 – Metal Building Systems

4 19.50 Pre-Engineered Steel Buildings	Crew	Daily Output	Labor-Hours	Unit	2012 Bare Costs				Total Incl O&P
					Material	Labor	Equipment	Total	
Single leaf, 3070 (3' x 7'), ecomany	2 Sswk	5	3.200	Opng.	580	158		738	920
Deluxe		4	4		635	197		832	1,050
Glazed		4	4		740	197		937	1,175
3670 (3'-6" x 7')		4	4		815	197		1,012	1,250
4070 (4' x 7')		3	5.333		885	263		1,148	1,450
Double leaf, 6070 (6' x 7')		2	8		1,075	395		1,470	1,875
Glazed		2	8		1,400	395		1,795	2,250
Framing only, for openings, 3' x 7'		4	4		174	197		371	545
10' x 10'		3	5.333		575	263		838	1,100
For windows below, 2020 (2' x 2')		6	2.667		185	132		317	440
4030 (4' x 3')		5	3.200		226	158		384	530
Flashings, 26 ga., corner or eave, painted		240	.067	L.F.	4.31	3.29		7.60	10.65
Galvanized		240	.067		3.91	3.29		7.20	10.20
Rake flashing, painted		240	.067		4.65	3.29		7.94	11
Galvanized		240	.067		4.19	3.29		7.48	10.50
Ridge flashing, 18" wide, painted		240	.067		6.20	3.29		9.49	12.75
Galvanized		240	.067		6.75	3.29		10.04	13.35
Gutter, eave type, 26 ga., painted		320	.050		6.70	2.47		9.17	11.75
Valley type, between buildings, painted		120	.133		12.25	6.60		18.85	25
Insulation, rated .6 lb. density, unfaced 4" thick, R13	2 Carp	2300	.007	S.F.	.37	.31		.68	.88
6" thick, R19		2300	.007		.51	.31		.82	1.03
10" thick, R30		2300	.007		.90	.31		1.21	1.46
Insulation, rated .6 lb. density, poly/scrim/fail (PSF) faced									
4" thick R13	2 Carp	2300	.007	S.F.	.47	.31		.78	.99
6" thick, R19		2300	.007		.61	.31		.92	1.14
9 1/2" thick, R30		2300	.007		.78	.31		1.09	1.33
Insulation, rated .6 lb. density, vinyl faced 1-1/2" thick, R5		2300	.007		.27	.31		.58	.77
3" thick, R10		2300	.007		.31	.31		.62	.81
4" thick, R13		2300	.007		.41	.31		.72	.92
6" thick, R19		2300	.007		.54	.31		.85	1.06
10" thick, R30		2300	.007		1.16	.31		1.47	1.75
Fail/scrim/kraft (FSK) faced, 1-1/2" thick, R5		2300	.007		.29	.31		.60	.79
2" thick, R6		2300	.007		.37	.31		.68	.88
3" thick, R10		2300	.007		.42	.31		.73	.93
4" thick, R13		2300	.007		.43	.31		.74	.94
6" thick, R19		2300	.007		.55	.31		.86	1.08
10" thick, R30		2300	.007		.74	.31		1.05	1.28
Met polyester/scrim/kraft (PSK) facing, 1-1/2" thk, R5		2300	.007		.47	.31		.78	.99
2" thick, R6		2300	.007		.55	.31		.86	1.08
3" thick, R11		2300	.007		.63	.31		.94	1.16
4" thick, R13		2300	.007		.72	.31		1.03	1.26
6" thick, R19		2300	.007		.86	.31		1.17	1.42
10" thick, R30		2300	.007		.95	.31		1.26	1.52
Vinyl/scrim/fail (VSF), 1-1/2" thick, R5		2300	.007		.41	.31		.72	.92
2" thick, R6		2300	.007		.52	.31		.83	1.04
3" thick, R10		2300	.007		.56	.31		.87	1.09
4" thick, R13		2300	.007		.69	.31		1	1.23
Vinyl/scrim/vinyl (VSV) 4" thick, R13		2300	.007		.61	.31		.92	1.14
6" thick, R19		2300	.007		.76	.31		1.07	1.31
9 1/2" thick, R30		2300	.007		.77	.31		1.08	1.32
Polyprop/scrim/polyester (PSP), 4", R13		2300	.007		.45	.31		.76	.97
6" thick, R19		2300	.007		.61	.31		.92	1.14
10" thick, R30		2300	.007		1.03	.31		1.34	1.60

13 34 Fabricated Engineered Structures

13 34 19 – Metal Building Systems

13 34 19.50 Pre-Engineered Steel Buildings		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl. Del.
7560	Polyprop/ scrim/kraft/polyester (PSKP), 4" thick, R13	2 Corp	2300	.007	S.F.	.45	.31		.76	
7570	6" thick, R19		2300	.007		.62	.31		.93	
7580	10" thick, R19		2300	.007		1.18	.31		1.49	
7585	Vinyl/ scrim/polyester (VSP), 4" thick, R13		2300	.007		.44	.31		.75	
7590	6" thick, R19		2300	.007		.59	.31		.90	
7600	10" thick, R30	▼	2300	.007	▼	1.06	.31		1.37	
7635	Insulation installation, over the purlin, second layer, up to 4" thick, add						90%			
7640	Insulation installation, between the purlins, up to 4" thick, add						100%			
7650	Sash, single slide, glazed, with screens, 2020 (2' x 2')	E-1	22	1.091	Opng.	121	53	5.55	179.55	221
7700	3030 (3' x 3')		14	1.714		272	83	8.70	363.70	434
7750	4030 (4' x 3')		13	1.846		365	89.50	9.35	463.85	560
7800	6040 (6' x 4')		12	2		725	97	10.15	832.15	977
7850	Double slide sash, 3030 (3' x 3')		14	1.714		211	83	8.70	302.70	368
7900	6040 (6' x 4')		12	2		560	97	10.15	667.15	799
7950	Fixed glass, no screens, 3030 (3' x 3')		14	1.714		210	83	8.70	301.70	368
8000	6040 (6' x 4')		12	2		560	97	10.15	667.15	799
8050	Prefinished storm sash, 3030 (3' x 3')	▼	70	.343	▼	72	16.60	1.74	90.34	108
8100	Siding and roofing, see Sections 07 41 13.00 & 07 42 13.00									
8200	Skylight, fiberglass panels, to 30 S.F.	E-1	10	2.400	Ea.	103	116	12.15	231.15	322
8250	Larger sizes, add for excess over 30 S.F.	"	300	.080	S.F.	3.44	3.88	.41	7.73	14.1
8300	Roof vents, circular with damper, birdscreen									
8350	and operator hardware, painted									
8400	26 ga., 12" diameter	1 Sswk	4	2	Ea.	69	98.50		167.50	258
8450	20" diameter		3	2.667		142	132		274	394
8500	24 ga., 24" diameter		2	4		282	197		479	644
8550	Galvanized	▼	2	4		236	197		433	611
8600	Continuous, 26 ga., 10' long, 9" wide	2 Sswk	4	4		22	197		219	308
8650	12" wide	"	4	4	▼	26.50	197		223.50	308

13 34 23 – Fabricated Structures

13 34 23.10 Comfort Stations										
0010	COMFORT STATIONS Prefab., stock, w/doors, windows & fixt.									
0100	Not incl. interior finish or electrical									
0300	Mobile, on steel frame, minimum				S.F.	48			48	58
0350	Maximum					81			81	101
0400	Permanent, including concrete slab, minimum	B-12J	50	.320		199	13.25	16.90	229.15	289
0500	Maximum	"	43	.372	▼	288	15.40	19.65	323.05	393
0600	Alternate pricing method, mobile, minimum				Fixture	2,150			2,150	2,350
0650	Maximum					3,175			3,175	3,550
0700	Permanent, minimum	B-12J	.70	22.857		12,200	945	1,200	14,345	16,345
0750	Maximum	"	.50	32	▼	20,400	1,325	1,700	23,425	26,350

13 34 23.15 Domes

DOMES										
0010	Domes, rev. alum., elec. drive, for astronomy obsv. shell only, stock units									
0620	10'-6" diameter	2 Corp	.25	64	Ea.	16,000	2,825		18,825	22,000
0900	18'-6" diameter		.17	94.118		43,000	4,150		47,150	53,300
1200	24'-6" diameter	▼	.08	200	▼	77,000	8,825		85,825	98,000
1500	Domes, bulk storage, shell only, dual radius hemisphere, arch, steel									
1600	framing, corrugated steel covering, 150' diameter	E-2	550	.102	SF Flr.	28	4.91	2.72	35.63	
1700	400' diameter	"	720	.078		22.50	3.75	2.08	28.33	
1800	Wood framing, wood decking, to 400' diameter	F-4	400	.120	▼	20.50	5.30	2.75	28.55	
1900	Radial framed wood (2" x 6"), 1/2" thick									
2000	plywood, asphalt shingles, 50' diameter	F-3	2000	.020	SF Flr.	40.50	.90	.31	41.71	

34 Fabricated Engineered Structures

4 23 - Fabricated Structures

23.15 Domes	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
60' diameter	F-3	1900	.021	SF Flr.	31	.94	.32	32.26	36
72' diameter		1800	.022		27.50	1	.34	28.84	32.50
116' diameter		1730	.023		24.50	1.04	.35	25.89	29
150' diameter		1500	.027		21	1.20	.41	22.61	25.50

23.16 Fabricated Control Booths

FABRICATED CONTROL BOOTHS

Guard House, prefab conc w/bullet resistant doors & windows, roof & wiring

8' x 8', Level III	L-10	1	24	Ea.	24,200	1,200	610	26,010	29,300
8' x 8', Level IV	"	1	24	"	30,300	1,200	610	32,110	36,000

23.25 Garage Costs

GARAGE COSTS

Public parking, average				Car				17,300	19,000
See also Square Foot Costs in Reference Section									
Residential, wood, 12' x 20', one car prefab shell, stock, economy	2 Carp	1	16	Total	3,775	705		4,480	5,225
Custom		.67	23.881		4,075	1,050		5,125	6,100
Two car, 24' x 20', economy		.67	23.881		8,050	1,050		9,100	10,500
Custom		.50	32		8,625	1,400		10,025	11,700

23.30 Garden House

GARDEN HOUSE Prefab wood, no floors or foundations

32 to 200 S.F., minimum	2 Carp	200	.080	SF Flr.	32	3.53		35.53	41
Maximum	"	48	.333	"	47	14.70		61.70	74

23.35 Geodesic Domes

GEODESIC DOMES Shell only, interlocking plywood panels

R133423-30

30' diameter	F-5	1.60	20	Ea.	22,100	890		22,990	25,700
33' diameter		1.14	28.070		23,300	1,250		24,550	27,600
40' diameter		1	32		27,100	1,425		28,525	32,000
45' diameter	F-3	1.13	35.556		28,400	1,600	545	30,545	34,300
56' diameter		1	40		51,000	1,800	610	53,410	59,500
60' diameter		1	40		57,500	1,800	610	59,910	67,000
67' diameter		.80	50		81,000	2,250	765	84,015	93,500
Aluminum panel, with 6" insulation									
100' diameter				SF Flr.	41			41	45.50
500' diameter				"	35.50			35.50	39
Aluminum framed, plexiglass closure panels									
40' diameter				SF Flr.	104			104	115
200' diameter				"	83.50			83.50	91.50
Aluminum framed, aluminum closure panels									
40' diameter				SF Flr.	33			33	36
100' diameter					24.50			24.50	27
200' diameter					23.50			23.50	26
For VRP faced banded fiberglass insulation, add									10
Aluminum framed, fiberglass sandwich panel closure									
6' diameter	2 Carp	150	.107	SF Flr.	36.50	4.70		41.20	48
28' diameter	"	350	.046	"	33.50	2.02		35.52	39.50

23.45 Kiosks

KIOSKS

Round, 5' diameter, 8' high, 1/4" fiberglass wall				Ea.	5,800			5,800	6,375
1" insulated double wall, fiberglass					6,600			6,600	7,250
Rectangular, 5' x 9', 7'-6" high, 1/4" fiberglass wall					8,450			8,450	9,300
1" insulated double wall, fiberglass					10,000			10,000	11,000

13 34 Fabricated Engineered Structures

13 34 23 – Fabricated Structures

13 34 23.60 Portable Booths					Daily Crew	Labor Output	Hours Unit	Material	2012 Bare Costs		Total	In
									Labor	Equipment		
0010	PORTABLE BOOTHS Prefab. aluminum with doors, windows, ext. roof											
0100	lights wiring & insulation, 15 S.F. building, O.D., painted, minimum						S.F.	296			296	
0300	30 S.F. building							216			216	
0400	50 S.F. building							161			161	
0600	80 S.F. building							131			131	
0700	100 S.F. building						▼	123			123	
0900	Acoustical booth, 27 Db @ 1,000 Hz, 15 S.F. floor						Ea.	3,550			3,550	
1000	7' x 7'-6", including light & ventilation							7,325			7,325	
1200	Ticket booth, galv. steel, not incl. foundations., 4' x 4'							5,000			5,000	
1300	4' x 6'						▼	6,500			6,500	

13 34 23.70 Shelters

0010	SHELTERS											
0020	Aluminum frame, acrylic glazing, 3' x 9' x 8' high				2 Sswk	1.14	14.035	Ea.	3,350	695	4,045	4
0100	9' x 12' x 8' high				"	.73	21.918	"	5,000	1,075	6,075	7

13 34 43 – Aircraft Hangars

13 34 43.50 Hangars

0010	HANGARS Prefabricated steel T hangars, Galv. steel roof &											
0100	walls, incl. electric bi-folding doors, 4 or more units,											
0110	not including floors or foundations, minimum				E-2	1275	.044	SF Flr.	16.25	2.12	1.17	19.54
0130	Maximum					1063	.053		18.85	2.54	1.41	22.80
0900	With bottom rolling doors, minimum					1386	.040		15.80	1.95	1.08	18.83
1000	Maximum				▼	966	.058	▼	18.35	2.80	1.55	22.70
1200	Alternate pricing method:											
1300	Galv. roof and walls, electric bi-folding doors, minimum				E-2	1.06	52.830	Plone	20,600	2,550	1,400	24,550
1500	Maximum					.91	61.538		24,900	2,975	1,650	29,525
1600	With bottom rolling doors, minimum					1.25	44.800		15,400	2,150	1,200	18,750
1800	Maximum				▼	.97	57.732	▼	17,900	2,775	1,550	22,225
2000	Circular type, prefab., steel frame, plastic skin, electric											
2010	door, including foundations, 80' diameter,											
2020	for up to 5 light planes, minimum				E-2	.50	112	Total	88,500	5,400	3,000	96,900
2200	Maximum				"	.25	224	"	100,500	10,800	6,000	117,300

13 34 53 – Agricultural Structures

13 34 53.50 Silos

0010	SILOS											
0500	Steel, factory fab., 30,000 gallon cap., painted, minimum				L-5	1	56	Ea.	21,000	2,775	695	24,470
0700	Maximum					.50	112		33,400	5,525	1,400	40,325
0800	Epoxy lined, minimum					1	56		34,300	2,775	695	37,770
1000	Maximum				▼	.50	112	▼	43,600	5,525	1,400	50,525

13 34 63 – Natural Fiber Construction

13 34 63.50 Straw Bale Construction

0010	STRAW BALE CONSTRUCTION											
2000	Straw bales wall, incl. labor & material complete, minimum				G			SF Flr.				
2010	Maximum				G			"				
2020	Straw bales in walls w/modified post and beam frame				G	2 Corp	320	.050	S.F.	6.60	2.21	8.81

B 36 Towers

36 13 – Metal Towers

13.50 Control Towers	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
CONTROL TOWERS									
Modular 12' x 10', incl. instruments, min.				Ea.	670,000			670,000	737,000
Maximum								927,500	1,020,000
With standard 40' tower, average				▼	935,000			935,000	1,028,500
Temporary portable control towers, 8' x 12', complete with one position communications, minimum				Ea.				266,000	293,000
For fixed facilities, depending on height, minimum								57,000	63,000
Maximum				▼				115,000	127,000

B 42 Building Modules

42 63 – Detention Cell Modules

42 63.16 Steel Detention Cell Modules

STEEL DETENTION CELL MODULES									
Cells, prefab., 5' to 6' wide, 7' to 8' high, 7' to 8' deep, bar front, cot, not incl. plumbing	E-4	1.50	21.333	Ea.	9,650	1,075	81	10,806	12,600

B 48 Sound, Vibration, and Seismic Control

48 13 – Manufactured Sound and Vibration Control Components

48 13.50 Audio Masking

AUDIO MASKING , acoustical enclosure, 4" thick wall and ceiling									
8# per S.F., up to 12' span	3 Carp	72	.333	SF Surf	32	14.70		46.70	58
Better quality panels, 10.5# per S.F.		64	.375		36.50	16.55		53.05	65.50
Reverb-chamber, 4" thick, parallel walls		60	.400		45.50	17.65		63.15	77
Skewed wall, parallel roof, 4" thick panels		55	.436		52	19.25		71.25	86.50
Skewed walls, skewed roof, 4" layers, 4" air space		48	.500		58.50	22		80.50	98.50
Sound-absorbing panels, pntd. mtl., 2'-6" x 8', under 1,000 S.F.		215	.112		12.10	4.92		17.02	21
Over 1000 S.F.		240	.100		11.65	4.41		16.06	19.60
Fabric faced	▼	240	.100		9.45	4.41		13.86	17.15
Flexible transparent curtain, clear	3 Shee	215	.112		7.30	5.80		13.10	16.85
50% foam		215	.112		10.20	5.80		16	20
75% foam		215	.112		10.20	5.80		16	20
100% foam	▼	215	.112	▼	10.20	5.80		16	20
Audio masking system, including speakers, amplification and signal generator									
Ceiling mounted, 5,000 S.F.	2 Elec	2400	.007	S.F.	1.25	.34		1.59	1.89
10,000 S.F.		2800	.006		1.01	.29		1.30	1.55
Plenum mounted, 5,000 S.F.		3800	.004		1.06	.22		1.28	1.49
10,000 S.F.	▼	4400	.004	▼	.72	.19		.91	1.07

13 49 Radiation Protection

13 49 13 - Integrated X-Ray Shielding Assemblies

13 49 13.50 Lead Sheets		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl.
0010	LEAD SHEETS									
0300	Lead sheets, 1/16" thick	2 Loh	135	.119	S.F.	10.05	4.65		14.70	
0400	1/8" thick		120	.133		20	5.25		25.25	
0500	Lead shielding, 1/4" thick		135	.119		49	4.65		53.65	
0550	1/2" thick		120	.133		83.50	5.25		88.75	
0950	Lead headed nails (average 1 lb. per sheet)				Lb.	7.60			7.60	
1000	Butt joints in 1/8" lead or thicker, 2" batten strip x 7' long	2 Loh	240	.067	Eo.	23.50	2.62		26.12	
1200	X-ray protection, average radiography or fluoroscopy									
1210	room, up to 300 S.F. floor, 1/16" lead, minimum	2 Loh	.25	64	Total	9,200	2,500		11,700	13.8
1500	Maximum, 7'-0" walls	"	.15	106	"	11,100	4,175		15,275	18.4
1600	Deep therapy X-ray room, 250 kV capacity,									
1800	up to 300 S.F. floor, 1/4" lead, minimum	2 Loh	.08	200	Total	25,700	7,850		33,550	39.8
1900	Maximum, 7'-0" walls	"	.06	266	"	31,700	10,500		42,200	50.5

13 49 19 - Lead-Lined Materials

13 49 19.50 Shielding Lead										
0010	SHIELDING LEAD									
0100	Laminated lead in wood doors, 1/16" thick, no hardware				S.F.	65.50			65.50	
0200	Lead lined door frame, not incl. hardware,									
0210	1/16" thick lead, butt prepared for hardware	1 Loh	2.40	3.333	Eo.	770	131		901	1.0
0850	Window frame with 1/16" lead and voice passage, 36" x 60"	2 Glaz	2	8		1,550	340		1,890	2.2
0870	24" x 36" frame		4	4		1,275	171		1,446	1.6
0900	Lead gypsum board, 5/8" thick with 1/16" lead		160	.100	S.F.	9.15	4.28		13.43	
0910	1/8" lead		140	.114		22	4.89		26.89	
0930	1/32" lead	2 Loh	200	.080		6.20	3.14		9.34	

13 49 21 - Lead Glazing

13 49 21.50 Lead Glazing										
0010	LEAD GLAZING									
0600	Lead glass, 1/4" thick, 2.0 mm LE, 12" x 16"	2 Glaz	13	1.231	Eo.	305	52.50		357.50	
0700	24" x 36"		8	2		1,100	85.50		1,185.50	1.3
0800	36" x 60"		2	8		3,375	340		3,715	4.2
2000	X-ray viewing panels, clear lead plastic									
2010	7 mm thick, 0.3 mm LE, 2.3 lb./S.F.	H-3	139	.115	S.F.	224	4.38		228.38	
2020	12 mm thick, 0.5 mm LE, 3.9 lb./S.F.		82	.195		305	7.40		312.40	
2030	18 mm thick, 0.8 mm LE, 5.9 lb./S.F.		54	.296		330	11.25		341.25	
2040	22 mm thick, 1.0 mm LE, 7.2 lb./S.F.		44	.364		335	13.85		348.85	
2050	35 mm thick, 1.5 mm LE, 11.5 lb./S.F.		28	.571		375	21.50		396.50	
2060	46 mm thick, 2.0 mm LE, 15.0 lb./S.F.		21	.762		495	29		524	
2090	For panels 12 S.F. to 48 S.F., add crating charge				Eo.					

13 49 23 - Integrated RFI/EMI Shielding Assemblies

13 49 23.50 Modular Shielding Partitions										
0010	MODULAR SHIELDING PARTITIONS									
4000	X-ray barriers, modular, panels mounted within framework for									
4002	attaching to floor, wall or ceiling, upper portion is clear lead									
4005	plastic window panels 48"H, lower portion is opaque leaded									
4008	steel panels 36"H, structural supports not incl.									
4010	1-section barrier, 36"W x 84"H overall									
4020	0.5 mm LE panels	H-3	6.40	2.500	Eo.	7,075	95		7,170	7.1
4030	0.8 mm LE panels		6.40	2.500		7,525	95		7,620	8.4
4040	1.0 mm LE panels		5.33	3.002		7,675	114		7,789	8.1
4050	1.5 mm LE panels		5.33	3.002		8,175	114		8,289	9.1
4060	2-section barrier, 72"W x 84"H overall									

49 Radiation Protection

49 23 – Integrated RFI/EMI Shielding Assemblies

9 23.50 Modular Shielding Partitions	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
0.5 mm LE panels	H-3	4	4	Eq.	14,400	152		14,552	16,100
0.8 mm LE panels		4	4		15,300	152		15,452	17,000
1.0 mm LE panels		3.56	4.494		15,600	171		15,771	17,500
1.5 mm LE panels		3.20	5		17,700	190		17,890	19,800
3-section barrier, 108"W x 84"H overall									
0.5 mm LE panels	H-3	3.20	5	Eq.	21,700	190		21,890	24,200
0.8 mm LE panels		3.20	5		22,900	190		23,090	25,500
1.0 mm LE panels		2.67	5.993		23,300	228		23,528	25,900
1.5 mm LE panels		2.46	6.504		25,300	247		25,547	28,200
X-ray barriers, mobile, mounted within framework w/casters on bottom, clear lead plastic window panels on upper portion, opaque on lower, 30"W x 75"H overall, incl. framework									
24"H upper w/0.5 mm LE, 48"H lower w/0.8 mm LE	1 Carp	16	.500	Eq.	3,775	22		3,797	4,175
48"H x 75"H overall, incl. framework									
36"H upper w/0.5 mm LE, 36"H lower w/0.8 mm LE	1 Carp	16	.500	Eq.	6,900	22		6,922	7,625
36"H upper w/1.0 mm LE, 36"H lower w/1.5 mm LE	"	16	.500	"	8,200	22		8,222	9,050
72"W x 75"H overall, incl. framework									
36"H upper w/0.5 mm LE, 36"H lower w/0.8 mm LE	1 Carp	16	.500	Eq.	8,175	22		8,197	9,025
36"H upper w/1.0 mm LE, 36"H lower w/1.5 mm LE	"	16	.500	"	10,200	22		10,222	11,300

49 33 – Radio Frequency Shielding

9 33.50 Shielding, Radio Frequency

SHIELDING, RADIO FREQUENCY									
Prefabricated or screen-type copper or steel, minimum	2 Carp	180	.089	SF Surf	30	3.92		33.92	39.50
Average		155	.103		32	4.55		36.55	42.50
Maximum		145	.110		34	4.87		38.87	45

53 Meteorological Instrumentation

53 09 – Weather Instrumentation

53 09.50 Weather Station

WEATHER STATION									
Remote recording, solar powered, with rain gauge & display, 400 ft range				Eq.	1,675			1,675	1,825
1 mile range				"	1,775			1,775	1,950

Division Notes

[illegible]

Estimating Tips

General

Many products in Division 14 require some type of support or blocking for installation not included with the item itself. Examples are supports for conveyors or tube systems, attachment points for cables, and footings for hoists or cranes. Add these supports in the appropriate division.

14 00 Dumbwaiters

14 20 00 Elevators

Dumbwaiters and elevators are estimated and purchased in a method similar to buying a car. The manufacturer has a base unit with standard features. Added to this base unit price will be whatever options the owner or specifications require. Increased load capacity, additional vertical travel, additional stops, higher speed, and cab finish options are items to be considered. When developing an estimate for dumbwaiters and elevators, remember that some items needed by the installers may have to be included as part of the general contract.

Examples are:

- shaftway
- rail support brackets
- machine room
- electrical supply
- sill angles
- electrical connections
- pits
- roof penthouses
- pit ladders

Check the job specifications and drawings before pricing.

- Installation of elevators and handicapped lifts in historic structures can require significant additional costs. The associated structural requirements may involve cutting into and repairing finishes, mouldings, flooring, etc. The estimator must account for these special conditions.

14 30 00 Escalators and Moving Walks

- Escalators and moving walks are specialty items installed by specialty contractors. There are numerous options associated with these items. For specific options, contact a manufacturer or contractor. In a method similar to estimating dumbwaiters and elevators, you should verify the extent of general contract work and add items as necessary.

14 40 00 Lifts

14 90 00 Other

Conveying Equipment

- Products such as correspondence lifts, chutes, and pneumatic tube systems, as well as other items specified in this subdivision, may require trained installers. The general contractor might not have any choice as to who will perform the installation or when it will be performed. Long lead times are often required for these products, making early decisions in scheduling necessary.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

14 11 Manual Dumbwaiters

14 11 10 – Hand Operated Dumbwaiters

14 11 10.20 Manual Dumbwaiters		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	To Inc.
0010	MANUAL DUMBWAITERS									
0020	2 stop, minimum	2 Elev	.75	21.333	Ea.	2,925	1,500		4,425	
0100	Maximum		.50	32	"	6,650	2,275		8,925	
0300	For each additional stop, add		.75	21.333	Stop	1,050	1,500		2,550	

14 12 Electric Dumbwaiters

14 12 10 – Dumbwaiters

14 12 10.10 Electric Dumbwaiters

0010	ELECTRIC DUMBWAITERS									
0020	2 stop, minimum	2 Elev	.13	123	Ea.	7,375	8,725		16,100	
0100	Maximum		.11	145	"	22,200	10,300		32,500	
0600	For each additional stop, add		.54	29.630	Stop	3,250	2,100		5,350	
0750	Correspondence lift, 1 floor, 2 stop, 45 lb. capacity	2 Elec	.20	80	Ea.	8,350	4,125		12,475	

14 21 Electric Traction Elevators

14 21 13 – Electric Traction Freight Elevators

14 21 13.10 Electric Traction Freight Elevators and Options

0010	ELECTRIC TRACTION FREIGHT ELEVATORS AND OPTIONS	R142000-10								
0425	Electric freight, base unit, 4000 lb., 200 fpm, 4 stop, std. fin.	2 Elev	.05	320	Ea.	99,000	22,700		121,700	
0450	For 5000 lb. capacity, add					5,500			5,500	
0500	For 6000 lb. capacity, add					16,000			16,000	
0525	For 7000 lb. capacity, add					19,800			19,800	
0550	For 8000 lb. capacity, add					43,400			43,400	
0575	For 10000 lb. capacity, add					30,000			30,000	
0600	For 12000 lb. capacity, add					36,500			36,500	
0625	For 16000 lb. capacity, add					46,500			46,500	
0650	For 20000 lb. capacity, add					55,000			55,000	
0675	For increased speed, 250 fpm, add					20,400			20,400	
0700	300 fpm, geared electric, add					25,800			25,800	
0725	350 fpm, geared electric, add					31,200			31,200	
0750	400 fpm, geared electric, add					36,300			36,300	
0775	500 fpm, gearless electric, add					43,800			43,800	
0800	600 fpm, gearless electric, add					53,000			53,000	
0825	700 fpm, gearless electric, add					63,000			63,000	
0850	800 fpm, gearless electric, add					72,500			72,500	
0875	For class "B" loading, add					5,875			5,875	
0900	For class "C-1" loading, add					8,300			8,300	
0925	For class "C-2" loading, add					9,475			9,475	
0950	For class "C-3" loading, add					12,000			12,000	
0975	For travel over 40 V.L.F., add	2 Elev	7.25	2.207	V.L.F.	775	156		931	
1000	For number of stops over 4, add	"	.27	59.259	Stop	3,925	4,200		8,125	

14 21 23 – Electric Traction Passenger Elevators

14 21 23.10 Electric Traction Passenger Elevators and Options

0010	ELECTRIC TRACTION PASSENGER ELEVATORS AND OPTIONS									
1625	Electric pass., base unit, 2000 lb., 200 fpm, 4 stop, std. fin.	2 Elev	.05	320	Ea.	84,000	22,700		106,700	
1650	For 2500 lb. capacity, add					3,525			3,525	
1675	For 3000 lb. capacity, add					4,200			4,200	
1700	For 3500 lb. capacity, add					7,025			7,025	
1725	For 4000 lb. capacity, add					6,600			6,600	

21 Electric Traction Elevators

21 23 - Electric Traction Passenger Elevators

23.10 Electric Traction Passenger Elevators and Options	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
For 4500 lb. capacity, add				Ea.	8,325			8,325	9,175
For 5000 lb. capacity, add					10,100			10,100	11,100
For increased speed, 250 fpm, geared electric, add					6,100			6,100	6,700
300 fpm, geared electric, add					9,325			9,325	10,200
350 fpm, geared electric, add					10,600			10,600	11,700
400 fpm, geared electric, add					13,600			13,600	14,900
500 fpm, gearless electric, add					32,000			32,000	35,200
600 fpm, gearless electric, add					39,600			39,600	43,600
700 fpm, gearless electric, add					41,800			41,800	46,000
800 fpm, gearless electric, add					48,000			48,000	53,000
For travel over 40 V.L.F., add	2 Elev	7.25	2.207	V.L.F.	910	156		1,066	1,225
For number of stops over 4, add		.27	59.259	Stop	6,825	4,200		11,025	13,800
Electric hospital, base unit, 4000 lb., 200 fpm, 4 stop, std fin.		.05	320	Ea.	72,500	22,700		95,200	113,500
For 4500 lb. capacity, add					5,175			5,175	5,675
For 5000 lb. capacity, add					6,225			6,225	6,825
For increased speed, 250 fpm, geared electric, add					6,150			6,150	6,775
300 fpm, geared electric, add					9,200			9,200	10,100
350 fpm, geared electric, add					10,500			10,500	11,600
400 fpm, geared electric, add					13,400			13,400	14,700
500 fpm, gearless electric, add					33,200			33,200	36,500
600 fpm, gearless electric, add					38,300			38,300	42,100
700 fpm, gearless electric, add					43,700			43,700	48,100
800 fpm, gearless electric, add					50,500			50,500	55,500
For travel over 40 V.L.F., add	2 Elev	7.25	2.207	V.L.F.	580	156		736	875
For number of stops over 4, add	"	.27	59.259	Stop	3,875	4,200		8,075	10,600

21 33 - Electric Traction Residential Elevators

33.20 Residential Elevators

RESIDENTIAL ELEVATORS	2 Elev								
Residential, cab type, 1 floor, 2 stop, minimum		.20	80	Ea.	11,000	5,675		16,675	20,600
Maximum		.10	160		18,600	11,300		29,900	37,500
2 floor, 3 stop, minimum		.12	133		16,400	9,450		25,850	32,200
Maximum		.06	266		26,700	18,900		45,600	57,500

24 Hydraulic Elevators

24 13 - Hydraulic Freight Elevators

13.10 Hydraulic Freight Elevators and Options

HYDRAULIC FREIGHT ELEVATORS AND OPTIONS	2 Elev								
Hydraulic freight, base unit, 2000 lb., 50 fpm, 2 stop, std. fin.		.10	160	Ea.	76,000	11,300		87,300	101,000
For 2500 lb. capacity, add					4,450			4,450	4,900
For 3000 lb. capacity, add					7,825			7,825	8,600
For 3500 lb. capacity, add					14,100			14,100	15,500
For 4000 lb. capacity, add					15,100			15,100	16,600
For 4500 lb. capacity, add					17,800			17,800	19,600
For 5000 lb. capacity, add					22,400			22,400	24,700
For 6000 lb. capacity, add					27,800			27,800	30,600
For 7000 lb. capacity, add					33,800			33,800	37,100
For 8000 lb. capacity, add					37,200			37,200	40,900
For 10000 lb. capacity, add					46,600			46,600	51,500
For 12000 lb. capacity, add					61,000			61,000	67,000
For 16000 lb. capacity, add					83,500			83,500	92,000

14 24 Hydraulic Elevators

14 24 13 – Hydraulic Freight Elevators

14 24 13.10 Hydraulic Freight Elevators and Options		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
1350	For 20000 lb. capacity, add				Ea.	101,500			101,500
1375	For increased speed, 100 fpm, add					1,950			1,950
1400	125 fpm, add					4,250			4,250
1425	150 fpm, add					5,100			5,100
1450	175 fpm, add					8,650			8,650
1475	For class "B" loading, add					5,850			5,850
1500	For class "C-1" loading, add					8,275			8,275
1525	For class "C-2" loading, add					9,450			9,450
1550	For class "C-3" loading, add					12,000			12,000
1575	For travel over 20 V.L.F., add	2 Elev	7.25	2.207	V.L.F.	1,525	156		1,681
1600	For number of stops over 2, add	"	.27	59.259	Stop	4,125	4,200		8,325

14 24 23 – Hydraulic Passenger Elevators

14 24 23.10 Hydraulic Passenger Elevators and Options

14 24 23.10 HYDRAULIC PASSENGER ELEVATORS AND OPTIONS		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
0010	HYDRAULIC PASSENGER ELEVATORS AND OPTIONS								
2050	Hyd. pass., base unit, 1500 lb., 100 fpm, 2 stop, std. fin.	2 Elev	.10	160	Ea.	44,400	11,300		55,700
2075	For 2000 lb. capacity, add					1,750			1,750
2100	For 2500 lb. capacity, add					2,800			2,800
2125	For 3000 lb. capacity, add					3,725			3,725
2150	For 3500 lb. capacity, add					5,675			5,675
2175	For 4000 lb. capacity, add					7,000			7,000
2200	For 4500 lb. capacity, add					7,900			7,900
2225	For 5000 lb. capacity, add					10,500			10,500
2250	For increased speed, 125 fpm, add					2,575			2,575
2275	150 fpm, add					3,300			3,300
2300	175 fpm, add					5,000			5,000
2325	200 fpm, add					7,025			7,025
2350	For travel over 12 V.L.F., add	2 Elev	7.25	2.207	V.L.F.	835	156		991
2375	For number of stops over 2, add	"	.27	59.259	Stop	2,250	4,200		6,450
2725	Hydraulic hospital, base unit, 4000 lb., 100 fpm, 2 stop, std. fin.	↓	.10	160	Ea.	56,500	11,300		67,800
2775	For 4500 lb. capacity, add					6,425			6,425
2800	For 5000 lb. capacity, add					8,500			8,500
2825	For increased speed, 125 fpm, add					3,000			3,000
2850	150 fpm, add					3,900			3,900
2875	175 fpm, add					5,675			5,675
2900	200 fpm, add					6,850			6,850
2925	For travel over 12 V.L.F., add	2 Elev	7.25	2.207	V.L.F.	665	156		821
2950	For number of stops over 2, add	"	.27	59.259	Stop	3,875	4,200		8,075

14 27 Custom Elevator Cabs and Doors

14 27 13 – Custom Elevator Cab Finishes

14 27 13.10 Cab Finishes

14 27 13.10 CAB FINISHES		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
0010	CAB FINISHES								
3325	Passenger elevator cab finishes (based on 3500 lb. cab size)								
3350	Acrylic panel ceiling				Ea.	715			715
3375	Aluminum eggcrate ceiling					1,075			1,075
3400	Stainless steel doors					3,075			3,075
3425	Carpet flooring					580			580
3450	Epoxy flooring					440			440
3475	Quarry tile flooring					825			825
3500	Slote flooring					1,450			1,450

27 Custom Elevator Cabs and Doors

27.13 – Custom Elevator Cab Finishes

7 13.10 Cab Finishes		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Incl O&P
	Textured rubber flooring				Eo.	190			190	208
	Stainless steel walls					4,725			4,725	5,200
	Stainless steel returns at door				▼	1,075			1,075	1,200
Hospital elevator cab finishes (based on 3500 lb. cab size)										
	Aluminum eggcrate ceiling				Eo.	1,050			1,050	1,175
	Stainless steel doors					2,575			2,575	2,825
	Epoxy flooring					355			355	390
	Quarry tile flooring					830			830	910
	Textured rubber flooring					630			630	690
	Stainless steel walls					4,700			4,700	5,175
	Stainless steel returns at door				▼	1,075			1,075	1,200

28 Elevator Equipment and Controls

28.10 – Elevator Equipment and Control Options

28.10.10 Elevator Controls and Doors

ELEVATOR CONTROLS AND DOORS

Passenger elevator options										
	2 car group automatic controls	2 Elev	.66	24.242	Eo.	5,825	1,725		7,550	9,000
	3 car group automatic controls		.44	36.364		11,400	2,575		13,975	16,500
	4 car group automatic controls		.33	48.485		23,200	3,425		26,625	30,700
	5 car group automatic controls		.26	61.538		42,300	4,350		46,650	53,000
	6 car group automatic controls		.22	72.727		86,500	5,150		91,650	102,500
	Intercom service		3	5.333		1,225	380		1,605	1,925
	Duplex car selective collective		.66	24.242		10,700	1,725		12,425	14,400
	Center opening 1 speed doors		2	8		1,750	565		2,315	2,775
	Center opening 2 speed doors		2	8		2,450	565		3,015	3,550
	Rear opening doors (opposite front)		2	8		2,825	565		3,390	3,950
	Side opening 2 speed doors		2	8		4,475	565		5,040	5,775
	Automatic emergency power switching		.66	24.242		1,100	1,725		2,825	3,800
	Manual emergency power switching		▼	8	2	485	142		627	745
	Hall finishes, stainless steel doors					1,825			1,825	2,000
	Stainless steel frames					1,425			1,425	1,575
	12 month maintenance contract								3,600	3,950
	Signal devices, hall lanterns	2 Elev	8	2		530	142		672	795
	Position indicators, up to 3		9.40	1.702		570	121		691	810
	Position indicators, per each over 3		▼	32	.500	540	35.50		575.50	650
	High speed heavy duty door opener					3,775			3,775	4,150
	Variable voltage, O.H. gearless machine, min.	2 Elev	.16	100		61,500	7,075		68,575	78,000
	Maximum		.07	228		92,000	16,200		108,200	126,000
	Basement installed geared machine		▼	.33	48.485	▼	63,000	3,425	66,425	74,000
Freight elevator options										
	Doors, bi-parting	2 Elev	.66	24.242	Eo.	8,900	1,725		10,625	12,400
	Power operated door and gate	"	.66	24.242		22,300	1,725		24,025	27,200
	Finishes, steel plate floor					2,200			2,200	2,425
	14 ga. 1/4" x 4' steel plate walls					1,825			1,825	2,000
	12 month maintenance contract								3,600	3,950
	Signal devices, hall lanterns	2 Elev	8	2		525	142		667	785
	Position indicators, up to 3		9.40	1.702		580	121		701	820
	Position indicators, per each over 3		32	.500		545	35.50		580.50	655
	Variable voltage basement installed geared machine		▼	.66	24.242	▼	18,600	1,725	20,325	23,100
Hospital elevator options										

14 28 Elevator Equipment and Controls

14 28 10 – Elevator Equipment and Control Options

14 28 10.10 Elevator Controls and Doors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
4125	2 car group automatic controls	2 Elev	.66	24.242	Ea.	5,825	1,725		7,550
4150	3 car group automatic controls		.44	36.364		11,400	2,575		13,975
4175	4 car group automatic controls		.33	48.485		23,100	3,425		26,525
4200	5 car group automatic controls		.26	61.538		42,100	4,350		46,450
4225	6 car group automatic controls		.22	72.727		86,000	5,150		91,150
4250	Intercom service		3	5.333		1,225	380		1,605
4275	Duplex car selective collective		.66	24.242		10,700	1,725		12,425
4300	Center opening 1 speed doors		2	8		1,750	565		2,315
4325	Center opening 2 speed doors		2	8		2,375	565		2,940
4350	Rear opening doors (opposite front)		2	8		3,400	565		3,965
4375	Side opening 2 speed doors		2	8		4,950	565		5,515
4400	Automatic emergency power switching		.66	24.242		1,075	1,725		2,800
4425	Manual emergency power switching	▼	8	2		475	142		617
4675	Hall finishes, stainless steel doors					1,825			1,825
4700	Stainless steel frames					1,425			1,425
4725	12 month maintenance contract								3,600
4750	Signal devices, hall lanterns	2 Elev	8	2		520	142		662
4775	Position indicators, up to 3		9.40	1.702		570	121		691
4800	Position indicators, per each over 3	▼	32	.500		540	35.50		575.50
4825	High speed heavy duty door opener					3,775			3,775
4850	Variable voltage, 0.H. gearless machine, min.	2 Elev	.16	100		61,000	7,075		68,075
4865	Maximum		.07	228		90,500	16,200		106,700
4875	Basement installed geared machine	▼	.33	48.485	▼	23,400	3,425		26,825
5000	Drilling for piston, casing included, 18" diameter	B-48	80	.700	V.L.F.	49.50	27.50	34.50	111.50

14 31 Escalators

14 31 10 – Glass and Steel Escalators

14 31 10.10 Escalators

0010 ESCALATORS		R143110-10								
		M-1								
1000	Glass, 32" wide x 10' floor to floor height		.07	457	Ea.	82,000	30,800	660	113,460	
1010	48" wide x 10' floor to floor height		.07	457		88,000	30,800	660	119,460	
1020	32" wide x 15' floor to floor height		.06	533		86,500	35,900	770	123,170	
1030	48" wide x 15' floor to floor height		.06	533		91,000	35,900	770	127,670	
1040	32" wide x 20' floor to floor height		.05	653		91,000	44,000	940	135,940	
1050	48" wide x 20' floor to floor height		.05	653		99,000	44,000	940	143,940	
1060	32" wide x 25' floor to floor height		.04	800		98,500	54,000	1,150	153,650	
1070	48" wide x 25' floor to floor height		.04	800		113,500	54,000	1,150	168,650	
1080	Enameled steel, 32" wide x 10' floor to floor height		.07	457		88,000	30,800	660	119,460	
1090	48" wide x 10' floor to floor height		.07	457		94,500	30,800	660	125,960	
1110	32" wide x 15' floor to floor height		.06	533		94,500	35,900	770	131,170	
1120	48" wide x 15' floor to floor height		.06	533		94,500	35,900	770	131,170	
1130	32" wide x 20' floor to floor height		.05	653		97,500	44,000	940	142,440	
1140	48" wide x 20' floor to floor height		.05	653		104,500	44,000	940	149,440	
1150	32" wide x 25' floor to floor height		.04	800		104,500	54,000	1,150	159,650	
1160	48" wide x 25' floor to floor height		.04	800		104,500	54,000	1,150	159,650	
1170	Stainless steel, 32" wide x 10' floor to floor height		.07	457		104,500	30,800	660	135,960	
1180	48" wide x 10' floor to floor height		.07	457		104,500	30,800	660	135,960	
1500	32" wide x 15' floor to floor height		.06	533		95,500	35,900	770	132,170	
1700	48" wide x 15' floor to floor height		.06	533		97,000	35,900	770	133,670	
2300	32" wide x 25' floor to floor height		.04	800		105,000	54,000	1,150	160,150	
2500	48" wide x 25' floor to floor height	▼	.04	800	▼	126,500	54,000	1,150	181,650	

32 Moving Walks

32 10 – Moving Walkways

2 10.10 Moving Walks		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
MOVING WALKS							Labor	Equipment	Total	
R143210-20										
Walk, 27" tread width, minimum		M-1	6.50	4.923	L.F.	850	330	7.10	1,187.10	1,450
300' to 500', maximum			4.43	7.223		1,175	485	10.40	1,670.40	2,050
48" tread width walk, minimum			4.43	7.223		1,925	485	10.40	2,420.40	2,875
100' to 350', maximum			3.82	8.377		2,250	565	12.05	2,827.05	3,325
Ramp, 12° incline, 36" tread width, minimum			5.27	6.072		1,575	410	8.75	1,993.75	2,350
70' to 90' maximum			3.82	8.377		2,250	565	12.05	2,827.05	3,325
48" tread width, minimum			3.57	8.964		2,300	605	12.90	2,917.90	3,450
40' to 70', maximum			2.91	10.997		2,900	740	15.85	3,655.85	4,325

42 Wheelchair Lifts

42 13 – Inclined Wheelchair Lifts

42 13.10 Inclined Wheelchair Lifts and Stairclimbers

INCLINED WHEELCHAIR LIFTS AND STAIRCLIMBERS									
Stair climber (chair lift), single seat, minimum	2 Elev	1	16	Eo.	5,325	1,125		6,450	7,575
Maximum		.20	80		7,350	5,675		13,025	16,600
Stair lift, minimum		1	16		14,500	1,125		15,625	17,600
Maximum		.20	80		22,900	5,675		28,575	33,700

42 16 – Vertical Wheelchair Lifts

42 16.10 Wheelchair Lifts

WHEELCHAIR LIFTS									
Wheelchair lift, minimum	2 Elev	1	16	Eo.	7,325	1,125		8,450	9,750
Maximum	"	.50	32	"	17,300	2,275		19,575	22,400

45 Vehicle Lifts

45 10 – Hydraulic Vehicle Lifts

45 10.10 Hydraulic Lifts

HYDRAULIC LIFTS									
Double post, 9000 lb. frame	L-4	1.15	20.870	Eo.	3,350	865		4,215	5,000
26,000 lb. frame		.22	109		17,300	4,525		21,825	26,100
Hoists, single post, 8000 lb. capacity, swivel arms		.40	60		5,325	2,475		7,800	9,700
Two posts, adjustable frames, 11,000 lb. capacity		.25	96		6,850	3,975		10,825	13,700
24,000 lb. capacity		.15	160		9,150	6,625		15,775	20,300
7500 lb. capacity, frame supports		.50	48		7,625	1,975		9,600	11,500
Four post, roll on ramp		.50	48		6,850	1,975		8,825	10,600
Hydraulic lifts, above ground, 2 post, clear floor, 6000 lb. cop		2.67	8.989		7,525	370		7,895	8,850
9000 lb. capacity		2.29	10.480		17,800	435		18,235	20,300
15,000 lb. capacity		2	12		20,200	495		20,695	23,000
30,000 lb. capacity		1.60	15		44,600	620		45,220	50,000
4 post, ramp-style, 25,000 lb. capacity		2	12		17,400	495		17,895	20,000
35,000 lb. capacity		1	24		81,500	995		82,495	91,000
50,000 lb. capacity		1	24		91,000	995		91,995	101,500
75,000 lb. capacity		1	24		105,500	995		106,495	117,500
For drive thru tracks, odd, minimum					1,125			1,125	1,225
Maximum					1,925			1,925	2,100
Ramp extensions, 3' (set of 2)					920			920	1,000
Rolling jack platform					3,200			3,200	3,525
Elec/hyd jacking beam					8,550			8,550	9,425
Scissor lift, portable, 6000 lb. capacity					8,400			8,400	9,250

14 51 Correspondence and Parcel Lifts

14 51 10 – Electric Correspondence and Parcel Lifts

14 51 10.10 Correspondence Lifts		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	1c
CORRESPONDENCE LIFTS							Labor	Equipment		
0010										
0020	1 floor, 2 stop, 25 lb. capacity, electric	2 Elev	.20	80	Ea.	5,975	5,675		11,650	
0100	Hand, 5 lb. capacity	"	.20	80	"	2,250	5,675		7,925	
14 51 10.20 Parcel Lifts										
PARCEL LIFTS										
0010										
0020	20" x 20", 100 lb. capacity, electric, per floor	2 Mill	.25	64	Ea.	9,350	2,950		12,300	

14 91 Facility Chutes

14 91 33 – Laundry and Linen Chutes

14 91 33.10 Chutes

0011	CHUTES, linen, trash or refuse									
0050	Aluminized steel, 16 ga., 18" diameter	2 Shee	3.50	4.571	Floor	1,700	238		1,938	
0100	24" diameter		3.20	5		1,775	261		2,036	
0200	30" diameter		3	5.333		2,125	278		2,403	
0300	36" diameter		2.80	5.714		2,625	298		2,923	
0400	Galvanized steel, 16 ga., 18" diameter		3.50	4.571		1,000	238		1,238	
0500	24" diameter		3.20	5		1,125	261		1,386	
0600	30" diameter		3	5.333		1,275	278		1,553	
0700	36" diameter		2.80	5.714		1,500	298		1,798	
0800	Stainless steel, 18" diameter		3.50	4.571		3,000	238		3,238	
0900	24" diameter		3.20	5		3,150	261		3,411	
1000	30" diameter		3	5.333		3,750	278		4,028	
1005	36" diameter		2.80	5.714	▼	3,950	298		4,248	
1200	Linen chute bottom collector, aluminized steel		4	4	Ea.	1,400	209		1,609	
1300	Stainless steel		4	4		1,800	209		2,009	
1500	Refuse, bottom hopper, aluminized steel, 18" diameter		3	5.333		1,025	278		1,303	
1600	24" diameter		3	5.333		1,250	278		1,528	
1800	36" diameter	▼	3	5.333	▼	2,500	278		2,778	

14 91 82 – Trash Chutes

14 91 82.10 Trash Chutes and Accessories

0010	TRASH CHUTES AND ACCESSORIES									
2900	Package chutes, spiral type, minimum	2 Shee	4.50	3.556	Floor	2,425	185		2,610	
3000	Maximum	"	1.50	10.667	"	6,325	555		6,880	

14 92 Pneumatic Tube Systems

14 92 10 – Conventional, Automatic and Computer Controlled Pneumatic Tube Systems

14 92 10.10 Pneumatic Tube Systems

0010	PNEUMATIC TUBE SYSTEMS									
0020	100' long, single tube, 2 stations, stock									
0100	3" diameter	2 Stpi	.12	133	Total	6,600	7,425		14,025	18
0300	4" diameter	"	.09	177	"	7,450	9,900		17,350	23
0400	Twin tube, two stations or more, conventional system									
0600	2-1/2" round	2 Stpi	62.50	.256	L.F.	13.30	14.25		27.55	
0700	3" round		46	.348		15.25	19.35		34.60	
0900	4" round		49.60	.323		16.90	17.95		34.85	
1000	4" x 7" oval		37.60	.426	▼	24.50	23.50		48	
1050	Add for blower		2	8	System	5,200	445		5,645	4
1110	Plus for each round station, add	▼	7.50	2.133	Ea.	585	119		704	

92 Pneumatic Tube Systems

92 10 - Conventional, Automatic and Computer Controlled Pneumatic Tube Systems

92 10.10 Pneumatic Tube Systems	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
Plus for each oval station, add	2 Stpi	7.50	2.133	Ea.	585	119		704	825
Alternate pricing method: base cost, minimum		.75	21.333	Total	6,375	1,200		7,575	8,825
Maximum		.25	64	"	12,700	3,575		16,275	19,300
Plus total system length, add, minimum		93.40	.171	L.F.	8.20	9.55		17.75	23.50
Maximum		37.60	.426	"	24.50	23.50		48	62
Completely automatic system, 4" round, 15 to 50 stations		.29	55.172	Station	20,100	3,075		23,175	26,700
51 to 144 stations		.32	50		15,600	2,775		18,375	21,400
6" round or 4" x 7" oval, 15 to 50 stations		.24	66.667		25,200	3,725		28,925	33,300
51 to 144 stations		.23	69.565		21,100	3,875		24,975	29,100

Division Notes

[illegible]

Estimating Tips

for fire protection and
uses is located in Subdivisions
13 and 22 11 13.
labor adjustment factors
in Subdivision 22 01 02.20
apply to Division 21.
y, but not all, areas in the
require backflow protection
the fire system. It is advisable
check local building codes for
specific requirements.
For your reference, the following
list of the most applicable
Codes and Standards which
may be purchased from the
NFPA, 1 Batterymarch Park,
Quincy, MA 02169-7471.

NFPA 1: Uniform Fire Code
NFPA 10: Portable Fire
Extinguishers
NFPA 11: Low-, Medium-, and
High-Expansion Foam
NFPA 12: Carbon Dioxide
Extinguishing Systems (Also
companion 12A)
NFPA 13: Installation of
Sprinkler Systems (Also
companion 13D, 13E, and 13R)
NFPA 14: Installation of
Standpipe and Hose Systems
NFPA 15: Water Spray Fixed
Systems for Fire Protection
NFPA 16: Installation of
Foam-Water Sprinkler and
Foam-Water Spray Systems
NFPA 17: Dry Chemical
Extinguishing Systems (Also
companion 17A)
NFPA 18: Wetting Agents

NFPA 20: Installation of
Stationary Pumps for Fire
Protection
NFPA 22: Water Tanks for
Private Fire Protection
NFPA 24: Installation of Private
Fire Service Mains and their
Appurtenances
NFPA 25: Inspection, Testing and
Maintenance of Water-Based Fire
Protection

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

Note: Trade Service, in part, has been used as a reference source for some of the material prices used in Division 21.

21 05 Common Work Results for Fire Suppression

21 05 23 – General-Duty Valves for Water-Based Fire-Suppression Piping

21 05 23.50 General-Duty Valves		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
0010	GENERAL-DUTY VALVES , for water-based fire suppression								
6200	Valves and components								
6500	Check, swing, C.I. body, brass fittings, auto. ball drip								
6520	4" size	Q-12	3	5.333	Ea.	291	259		550
6800	Check, wafer, butterfly type, C.I. body, bronze fittings								
6820	4" size	Q-12	4	4	Ea.	410	195		605

21 11 Facility Fire-Suppression Water-Service Piping

21 11 16 – Facility Fire Hydrants

21 11 16.50 Fire Hydrants for Buildings

0010	FIRE HYDRANTS FOR BUILDINGS								
3750	Hydrants, wall, w/caps, single, flush, polished brass								
3800	2-1/2" x 2-1/2"	Q-12	5	3.200	Ea.	175	156		331
3840	2-1/2" x 3"	"	5	3.200	"	355	156		511
3950	Double, flush, polished brass								
4000	2-1/2" x 2-1/2" x 4"	Q-12	5	3.200	Ea.	470	156		626
4040	2-1/2" x 2-1/2" x 6"	"	4.60	3.478		675	169		844
4200	For polished chrome, add					10%			
4350	Double, projecting, polished brass								
4400	2-1/2" x 2-1/2" x 4"	Q-12	5	3.200	Ea.	209	156		365
4450	2-1/2" x 2-1/2" x 6"	"	4.60	3.478	"	425	169		594
4460	Valve control, dbl. flush/projecting hydrant, cap &								
4470	chain, extension rod & cplg., escutcheon, polished brass	Q-12	8	2	Ea.	249	97.50		346.50

21 11 19 – Fire-Department Connections

21 11 19.50 Connections for the Fire-Department

0010	CONNECTIONS FOR THE FIRE-DEPARTMENT								
7140	Standpipe connections, wall, w/plugs & chains								
7160	Single, flush, brass, 2-1/2" x 2-1/2"	Q-12	5	3.200	Ea.	123	156		279
7180	2-1/2" x 3"	"	5	3.200	"	135	156		291
7240	For polished chrome, add					15%			
7280	Double, flush, polished brass								
7300	2-1/2" x 2-1/2" x 4"	Q-12	5	3.200	Ea.	425	156		581
7330	2-1/2" x 2-1/2" x 6"	"	4.60	3.478	"	595	169		764
7400	For polished chrome, add					15%			
7440	For sill cock combination, add				Ea.	50.50			50.50
7900	Three way, flush, polished brass								
7920	2-1/2" (3) x 4"	Q-12	4.80	3.333	Ea.	1,225	162		1,387
7930	2-1/2" (3) x 6"	"	4.80	3.333		1,375	162		1,537
8000	For polished chrome, add					9%			
8020	Three way, projecting, polished brass								
8040	2-1/2"(3) x 4"	Q-12	4.80	3.333	Ea.	985	162		1,147

12 Fire-Suppression Standpipes

12 13 – Fire-Suppression Hoses and Nozzles

2 13.50 Fire Hoses and Nozzles	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
FIRE HOSES AND NOZZLES									
Adapters, rough brass, straight hose threads									
One piece, female to male, rocker lugs									
1" x 1"				Eo.	39.50			39.50	43.50
Hose, less couplings									
Synthetic jacket, lined, 300 lb. test, 1-1/2" diameter	Q-12	2600	.006	L.F.	2.39	.30		2.69	3.08
2-1/2" diameter		2200	.007		3.98	.35		4.33	4.91
High strength, 500 lb. test, 1-1/2" diameter		2600	.006		2.47	.30		2.77	3.17
2-1/2" diameter		2200	.007		4.29	.35		4.64	5.25
Nozzles, brass									
Adjustable fog, 3/4" booster line				Eo.	87.50			87.50	96
1" booster line					128			128	141
1-1/2" leader line					94			94	104
2-1/2" direct connection					123			123	135
For chrome plated, odd					8%				
Electrical fire, adjustable fog, no shock									
1-1/2"				Eo.	400			400	440
2-1/2"					540			540	595
For polished chrome, odd					6%				
Heavy duty, comb. adj. fog and str. stream, with handle									
1" booster line				Eo.	360			360	395

12 19 – Fire-Suppression Hose Racks

2 19.50 Fire Hose Racks

FIRE HOSE RACKS									
Hose rack, swinging, for 1-1/2" diameter hose,									
Enameled steel, 50' & 75' lengths of hose	Q-12	20	.800	Eo.	50	39		89	114
100' and 125' lengths of hose	"	20	.800	"	50.50	39		89.50	115

12 23 – Fire-Suppression Hose Valves

2 23.70 Fire Hose Valves

FIRE HOSE VALVES									
Wheel handle, 300 lb., 1-1/2"	1 Spr	12	.667	Eo.	89	36		125	152
2-1/2"	"	7	1.143	"	60	62		122	159
For polished brass, odd					35%				
For polished chrome, odd					50%				

13 Fire-Suppression Sprinkler Systems

13 13 – Wet-Pipe Sprinkler Systems

13 13.50 Wet-Pipe Sprinkler System Components

WET-PIPE SPRINKLER SYSTEM COMPONENTS									
Sprinkler heads, not including supply piping									
Standard spray, pendent or upright, brass, 135°F to 286°F									
1/2" NPT, 7/16" orifice	1 Spr	16	.500	Eo.	13.15	27		40.15	55.50
1/2" NPT, 1/2" orifice	"	16	.500		8.55	27		35.55	50.50
For wax and lead coating, odd					29.50			29.50	32
For wax coating, odd					17.50			17.50	19.25
For lead coating, odd					19			19	21
For 360°F, same cost									
For 400°F, odd				Eo.	55.50			55.50	61
For 500°F, odd				"	55.50			55.50	61
Sidewall, horizontal, brass, 135°F to 286°F									

21 13 Fire-Suppression Sprinkler Systems

21 13 13 – Wet-Pipe Sprinkler Systems

21 13 13.50 Wet-Pipe Sprinkler System Components		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	Bare Costs Equipment	Total	Unit
4520	1/2" NPT, 1/2" orifice	1 Spr	16	.500	Ea.	21	27		48	
4540	For 360°F, same cost									
4800	Recessed pendent, brass, 135°F to 286°F									
4820	1/2" NPT, 3/8" orifice	1 Spr	10	.800	Ea.	40	43		83	
4830	1/2" NPT, 7/16" orifice		10	.800		21	43		64	
4840	1/2" NPT, 1/2" orifice		10	.800		16.25	43		59.25	

21 13 16 – Dry-Pipe Sprinkler Systems

21 13 16.50 Dry-Pipe Sprinkler System Components

0010	DRY-PIPE SPRINKLER SYSTEM COMPONENTS									
0600	Accelerator	1 Spr	8	1	Ea.	25.50	54		79.50	
2600	Sprinkler heads, not including supply piping									
2640	Dry, pendent, 1/2" orifice, 3/4" or 1" NPT									
2700	15-1/4" to 18" length	1 Spr	14	.571	Ea.	123	31		154	
2710	18-1/4" to 21" length		13	.615		128	33.50		161.50	
2720	21-1/4" to 24" length		13	.615		132	33.50		165.50	
2730	24-1/4" to 27" length		13	.615		137	33.50		170.50	

21 13 26 – Deluge Fire-Suppression Sprinkler Systems

21 13 26.50 Deluge Fire-Suppression Sprinkler Sys. Comp.

0010	DELUGE FIRE-SUPPRESSION SPRINKLER SYSTEM COMPONENTS									
6200	Valves and components									
7000	Deluge, assembly, incl. trim, pressure									
7020	operated relief, emergency release, gauges									
7040	2" size	Q-12	2	8	Ea.	3,175	390		3,565	4
7060	3" size	"	1.50	10.667	"	3,550	520		4,070	4

21 13 39 – Foam-Water Systems

21 13 39.50 Foam-Water System Components

0010	FOAM-WATER SYSTEM COMPONENTS									
2600	Sprinkler heads, not including supply piping									
3600	Foam-water, pendent or upright, 1/2" NPT	1 Spr	12	.667	Ea.	157	36		193	

21 21 Carbon-Dioxide Fire-Extinguishing Systems

21 21 16 – Carbon-Dioxide Fire-Extinguishing Equipment

21 21 16.50 CO2 Fire Extinguishing System

0010	CO₂ FIRE EXTINGUISHING SYSTEM									
0042	For detectors and control stations, see Section 28 31 23.50									
1000	Dispersion nozzle, CO ₂ , 3" x 5"	1 Plum	18	.444	Ea.	60	24.50		84.50	
2000	Extinguisher, CO ₂ system, high pressure, 75 lb. cylinder	Q-1	6	2.667		1,150	131		1,281	
3000	Electro/mechanical release	L-1	4	4		150	212		362	
3400	Manual pull station	1 Plum	6	1.333		54	73		127	

22 Clean-Agent Fire-Extinguishing Systems

216 – Clean-Agent Fire-Extinguishing Equipment

216.50 FM200 Fire Extinguishing System	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
FM200 FIRE EXTINGUISHING SYSTEM									
Dispersion nozzle FM200, 1-1/2"	1 Plum	14	.571	Ea.	60	31		91	113
Extinguisher, FM200 system, filled, with mounting bracket 196 lb. container	Q-1	4	4	Ea.	6,975	197		7,172	7,975
Average FM200 system, minimum				C.F.	1.58			1.58	1.74
Maximum				"	3.15			3.15	3.47

31 Centrifugal Fire Pumps

313 – Electric-Drive, Centrifugal Fire Pumps

313.50 Electric-Drive Fire Pumps

ELECTRIC-DRIVE FIRE PUMPS Including controller, fittings and relief valve									
250 GPM, 55 psi, 15 HP, 3550 RPM, 2" pump	Q-13	.70	45.714	Ea.	14,200	2,350		16,550	19,200
500 GPM, 50 psi, 27 HP, 1770 RPM, 4" pump		.68	47.059		14,500	2,425		16,925	19,700
750 GPM, 50 psi, 44 HP, 1770 RPM, 5" pump		.64	50		15,100	2,575		17,675	20,500
750 GPM, 100 psi, 66 HP, 3550 RPM, 4" pump	▼	.58	55.172		17,400	2,850		20,250	23,400
For jockey pump 1", 3 HP, with control, add	Q-12	2	8	▼	2,350	390		2,740	3,150

316 – Diesel-Drive, Centrifugal Fire Pumps

316.50 Diesel-Drive Fire Pumps

DIESEL-DRIVE FIRE PUMPS Including controller, fittings and relief valve									
500 GPM, 50 psi, 27 HP, 4" pump	Q-13	.64	50	Ea.	32,900	2,575		35,475	40,100
750 GPM, 50 psi, 44 HP, 5" pump		.60	53.333		33,900	2,750		36,650	41,400
1,000 GPM, 100 psi, 89 HP, 4" pump		.56	57.143		37,100	2,950		40,050	45,300
2,000 GPM, 100 psi, 167 HP, 6" pump	▼	.34	94.118		47,200	4,850		52,050	59,500
3,500 GPM, 100 psi, 300 HP, 10" pump	▼	.24	133	▼	65,500	6,875		72,375	82,500

[illegible]

Estimating Tips

22 00 Plumbing Piping and Pumps

This subdivision is primarily for pipe and related materials. This pipe may be used by any of the mechanical disciplines, i.e., heating, fire protection, refrigeration, and air conditioning.

For CPVC plastic piping approved for fire protection is listed in 21 11 13.

The labor adjustment factors listed in Subdivision 22 01

220 apply throughout

Divisions 21, 22, and 23.

CAUTION: the correct percentage may vary for the same items. For example, the percentage add for the basic

installation should be based on the maximum height

at the craftsman must install

that particular section. If

the pipe is to be located 14'

above the floor but it is

suspended on threaded rod

from beams, the bottom flange

which is 18' high (4' rods),

then the height is actually 18'

and the add is 20%. The pipe

however, does not have

to go above the 14', and so his

add should be 10%.

Cast pipe is priced first as

cast pipe with a joint

(coupling, weld, etc.) every 10'

and a hanger usually every 10'.

There are exceptions with hanger spacing such as for cast iron pipe (5') and plastic pipe (3 per 10'). Following each type of pipe there are several lines listing sizes and the amount to be subtracted to delete couplings and hangers. This is for pipe that is to be buried or supported together on trapeze hangers. The reason that the couplings are deleted is that these runs are usually long, and frequently longer lengths of pipe are used. By deleting the couplings, the estimator is expected to look up and add back the correct reduced number of couplings.

- When preparing an estimate, it may be necessary to approximate the fittings. Fittings usually run between 25% and 50% of the cost of the pipe. The lower percentage is for simpler runs, and the higher number is for complex areas, such as mechanical rooms.
- For historic restoration projects, the systems must be as invisible as possible, and pathways must be sought for pipes, conduit, and ductwork. While installations in accessible spaces (such as basements and attics) are relatively straightforward to estimate, labor costs may be more difficult to determine when delivery systems must be concealed.

22 40 00 Plumbing Fixtures

- Plumbing fixture costs usually require two lines: the fixture itself and its "rough-in, supply, and waste."

- In the Assemblies Section (Plumbing D2010) for the desired fixture, the System Components Group at the center of the page shows the fixture on the first line. The rest of the list (fittings, pipe, tubing, etc.) will total up to what we refer to in the Unit Price section as "Rough-in, supply, waste, and vent." Note that for most fixtures we allow a nominal 5' of tubing to reach from the fixture to a main or riser.

- Remember that gas- and oil-fired units need venting.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

Note: Trade Service, in part, has been used as a reference source for some of the material prices used in Division 22.

22 01 Operation and Maintenance of Plumbing

22 01 02 – Labor Adjustments

22 01 02.10 Boilers, General					Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs			Total	Total
										Labor	Equipment			
0010	BOILERS, GENERAL. Prices do not include flue piping, elec. wiring,													
0020	gas or oil piping, boiler base, pad, or tankless unless noted													
0100	Boiler H.P.: 10 KW = 34 lb./steam/hr. = 33,475 BTU/hr.				R235000-50									
0150	To convert SFR to BTU rating: Hot water, 150 x SFR;													
0160	Forced hot water, 180 x SFR; steam, 240 x SFR													
22 01 02.20 Labor Adjustment Factors														
0010	LABOR ADJUSTMENT FACTORS, (For Div. 21, 22 and 23)				R220102-20									
1000	Add to labor for elevated installation (Above floor level)													
1080	10' to 14.5' high										10%			
1100	15' to 19.5' high										20%			
1120	20' to 24.5' high										25%			
1140	25' to 29.5' high										35%			
1160	30' to 34.5' high										40%			
1180	35' to 39.5' high										50%			
1200	40' and higher										55%			
2000	Add to labor for crawl space													
2100	3' high										40%			
2140	4' high										30%			
3000	Add to labor for multi-story building													
	Add per floor for floors 3 thru 19										2%			
3140	Add per floor for floors 20 and up										4%			
4000	Add to labor for working in existing occupied buildings													
4100	Hospital										35%			
4140	Office building										25%			
4180	School										20%			
4220	Factory or warehouse										15%			
4260	Multi dwelling										15%			
5000	Add to labor, miscellaneous													
5100	Cramped shaft										35%			
5140	Congested area										15%			
5180	Excessive heat or cold										30%			
9000	Labor factors, The above are reasonable suggestions, however													
9010	each project should be evaluated for its own peculiarities.													
9100	Other factors to be considered are:													
9140	Movement of material and equipment through finished areas													
9180	Equipment room													
9220	Attic space													
9260	No service road													
9300	Poor unloading/storage area													
9340	Congested site area/heavy traffic													

05 Common Work Results for Plumbing

05 – Selective Plumbing Demolition

05.10 Plumbing Demolition	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
PLUMBING DEMOLITION						Labor	Equipment	Total	
Fixtures, including 10' piping									
Bathtubs, cast iron	1 Plum	4	2	Ea.		109		109	165
Fiberglass		6	1.333			73		73	110
Steel		5	1.600			87.50		87.50	132
Lavatory, wall hung		10	.800			43.50		43.50	66
Counter top		8	1			54.50		54.50	82.50
Sink, single compartment		8	1			54.50		54.50	82.50
Double compartment		7	1.143			62.50		62.50	94
Water closet, floor mounted		8	1			54.50		54.50	82.50
Wall mounted		7	1.143			62.50		62.50	94
Urinal, floor mounted		4	2			109		109	165
Wall mounted		7	1.143			62.50		62.50	94
Water fountains, free standing		8	1			54.50		54.50	82.50
Wall or deck mounted		6	1.333			73		73	110
Piping, metal, up thru 1-1/2" diameter		200	.040	L.F.		2.18		2.18	3.29
2" thru 3-1/2" diameter		150	.053			2.91		2.91	4.39
4" thru 6" diameter	2 Plum	100	.160			8.75		8.75	13.20
8" thru 14" diameter	"	60	.267			14.55		14.55	22
16" thru 20" diameter	Q-18	70	.343			17.80	.53	18.33	27.50
24" thru 26" diameter		55	.436			22.50	.67	23.17	34.50
30" thru 36" diameter		40	.600			31	.92	31.92	48
Deduct for salvage, aluminum scrap				Ton				700	770
Brass scrap								2,450	2,675
Copper scrap								3,200	3,525
Lead scrap								520	570
Steel scrap								180	200
Water heater, 40 gal.	1 Plum	6	1.333	Ea.		73		73	110
Water softener	Q-1	2	8	"		395		395	595

23 – General-Duty Valves for Plumbing Piping

23.10 Valves, Brass									
VALVES, BRASS									
Gas cocks, threaded									
1/2"	1 Plum	24	.333	Ea.	13.15	18.20		31.35	42
3/4"		22	.364		15.50	19.85		35.35	47
1"		19	.421		31	23		54	68.50
1-1/4"		15	.533		44.50	29		73.50	93

23.20 Valves, Bronze									
VALVES, BRONZE									
Angle, 150 lb., rising stem, threaded									
1/8"	1 Plum	24	.333	Ea.	119	18.20		137.20	159
1/4"		24	.333		119	18.20		137.20	159
3/8"		24	.333		119	18.20		137.20	159
1/2"		22	.364		119	19.85		138.85	161
3/4"		20	.400		162	22		184	211
1"		19	.421		234	23		257	292
1-1/2"		13	.615		360	33.50		393.50	445
2"		11	.727		630	39.50		669.50	755
Ball									
2"	1 Plum	9	.889	Ea.	145	48.50		193.50	233
150 psi, threaded									
1/4"	1 Plum	24	.333	Ea.	12.70	18.20		30.90	41.50

22 05 Common Work Results for Plumbing

22 05 23 – General-Duty Valves for Plumbing Piping

22 05 23.20 Valves, Bronze		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
1430	3/8"	1 Plum	24	.333	Ea.	12.70	18.20		30.90
1450	1/2"		22	.364		12.70	19.85		32.55
1460	3/4"		20	.400		21	22		43
1470	1"		19	.421		28.50	23		51.50
1480	1-1/4"		15	.533		50	29		79
1490	1-1/2"		13	.615		65	33.50		98.50
1500	2"	▼	11	.727	▼	78.50	39.50		118
1750	Check, swing, class 150, regrounding disc, threaded								
1800	1/8"	1 Plum	24	.333	Ea.	91	18.20		109.20
1830	1/4"		24	.333		91	18.20		109.20
1840	3/8"		24	.333		88.50	18.20		106.70
1850	1/2"		24	.333		107	18.20		125.20
1860	3/4"		20	.400		142	22		164
1870	1"		19	.421		145	23		168
1880	1-1/4"		15	.533		198	29		227
1890	1-1/2"		13	.615		292	33.50		325.50
1900	2"	▼	11	.727		400	39.50		439.50
1910	2-1/2"	Q-1	15	1.067	▼	615	52.50		667.50
2000	For 200 lb., add					5%	10%		
2040	For 300 lb., add					15%	15%		
2850	Gate, N.R.S., soldered, 125 psi								
2900	3/8"	1 Plum	24	.333	Ea.	48	18.20		66.20
2920	1/2"		24	.333		41	18.20		59.20
2940	3/4"		20	.400		47	22		69
2950	1"		19	.421		66.50	23		89.50
2960	1-1/4"		15	.533		102	29		131
2970	1-1/2"		13	.615		114	33.50		147.50
2980	2"	▼	11	.727		161	39.50		200.50
2990	2-1/2"	Q-1	15	1.067		405	52.50		457.50
3000	3"	"	13	1.231	▼	525	60.50		585.50
3850	Rising stem, soldered, 300 psi								
3950	1"	1 Plum	19	.421	Ea.	136	23		159
3980	2"	"	11	.727		360	39.50		399.50
4000	3"	Q-1	13	1.231	▼	1,150	60.50		1,210.50
4250	Threaded, class 150								
4310	1/4"	1 Plum	24	.333	Ea.	62.50	18.20		80.70
4320	3/8"		24	.333		62.50	18.20		80.70
4330	1/2"		24	.333		57.50	18.20		75.70
4340	3/4"		20	.400		67	22		89
4350	1"		19	.421		90	23		113
4360	1-1/4"		15	.533		122	29		151
4370	1-1/2"		13	.615		154	33.50		187.50
4380	2"	▼	11	.727		208	39.50		247.50
4390	2-1/2"	Q-1	15	1.067		485	52.50		537.50
4400	3"	"	13	1.231		675	60.50		735.50
4500	For 300 psi, threaded, add					100%	15%		
4540	For chain operated type, add				▼	15%			
4850	Globe, class 150, rising stem, threaded								
4920	1/4"	1 Plum	24	.333	Ea.	88.50	18.20		106.70
4940	3/8" size		24	.333		88.50	18.20		106.70
4950	1/2"		24	.333		88.50	18.20		106.70
4960	3/4"		20	.400		119	22		141
4970	1"		19	.421	▼	187	23		210

205 Common Work Results for Plumbing

23 – General-Duty Valves for Plumbing Piping

23.20 Valves, Bronze	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
1-1/4"	1 Plum	15	533	Ea.	298	29		327	375
1-1/2"		13	.615		360	33.50		393.50	450
2"		11	.727		540	39.50		579.50	655
2-1/2"	Q-1	15	1.067		1,100	52.50		1,152.50	1,275
3"	"	13	1.231	▼	1,425	60.50		1,485.50	1,675
For 300 lb. threaded, add					50%	15%			
Relief, pressure & temperature, self-closing, ASME, threaded									
3/4"	1 Plum	28	.286	Ea.	142	15.60		157.60	180
1"		24	.333		217	18.20		235.20	266
1-1/4"		20	.400		420	22		442	495
1-1/2"		18	.444		800	24.50		824.50	915
2"	▼	16	.500	▼	870	27.50		897.50	1,000
Pressure, poppet type, threaded									
1/2"	1 Plum	30	.267	Ea.	37.50	14.55		52.05	63.50
3/4"	"	28	.286	"	40	15.60		55.60	67.50
Pressure, water, ASME, threaded									
3/4"	1 Plum	28	.286	Ea.	80	15.60		95.60	112
1"		24	.333		170	18.20		188.20	215
1-1/4"		20	.400		270	22		292	330
1-1/2"		18	.444		375	24.50		399.50	445
2"		16	.500		540	27.50		567.50	635
2-1/2"	▼	15	.533	▼	2,650	29		2,679	2,975
Reducing, water pressure									
300 psi to 25-75 psi, threaded or sweat									
1/2"	1 Plum	24	.333	Ea.	257	18.20		275.20	310
3/4"		20	.400		257	22		279	315
1"		19	.421		400	23		423	475
1-1/4"		15	.533		715	29		744	830
1-1/2"	▼	13	.615	▼	1,075	33.50		1,108.50	1,225
Tempering, water, sweat connections									
1/2"	1 Plum	24	.333	Ea.	85	18.20		103.20	121
3/4"	"	20	.400	"	104	22		126	148
Threaded connections									
1/2"	1 Plum	24	.333	Ea.	128	18.20		146.20	169
3/4"		20	.400		475	22		497	560
1"		19	.421		535	23		558	625
1-1/4"		15	.533		830	29		859	955
1-1/2"		13	.615		905	33.50		938.50	1,050
2"	▼	11	.727	▼	1,350	39.50		1,389.50	1,550

23.60 Valves, Plastic

VALVES, PLASTIC	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Angle, PVC, threaded									
1/4"	1 Plum	26	.308	Ea.	74	16.80		90.80	107
1/2"		26	.308		74	16.80		90.80	107
3/4"		25	.320		87.50	17.45		104.95	123
1"	▼	23	.348	▼	106	19		125	146
Ball, PVC, socket or threaded, single union									
1/2"	1 Plum	26	.308	Ea.	26.50	16.80		43.30	55
3/4"		25	.320		30.50	17.45		47.95	60
1"		23	.348		38.50	19		57.50	70.50
1-1/4"		21	.381		51.50	21		72.50	88.50
1-1/2"	▼	20	.400	▼	61.50	22		83.50	101

22 05 Common Work Results for Plumbing

22 05 23 – General-Duty Valves for Plumbing Piping

22 05 23.60 Valves, Plastic		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
1280	2"	1 Plum	17	.471	Ea.	89	25.50		114.50
1360	For PVC, flanged, add				▼	100%	15%		
1650	CPVC, socket or threaded, single union								
1700	1/2"	1 Plum	26	.308	Ea.	53	16.80		69.80
1720	3/4"		25	.320		66.50	17.45		83.95
1730	1"		23	.348		80	19		99
1750	1-1/4"		21	.381		127	21		148
1760	1-1/2"	▼	20	.400		127	22		149
1840	For CPVC, flanged, add					65%	15%		
1880	For true union, socket or threaded, add				▼	50%	5%		
2050	Polypropylene, threaded								
2100	1/4"	1 Plum	26	.308	Ea.	40	16.80		56.80
2120	3/8"		26	.308		40	16.80		56.80
2130	1/2"		26	.308		40	16.80		56.80
2140	3/4"		25	.320		49	17.45		66.45
2150	1"		23	.348		56	19		75
2160	1-1/4"		21	.381		75	21		96
2170	1-1/2"		20	.400		93	22		115
2180	2"	▼	17	.471	▼	125	25.50		150.50
4850	Foot valve, PVC, socket or threaded								
4900	1/2"	1 Plum	34	.235	Ea.	66.50	12.85		79.35
4930	3/4"		32	.250		75	13.65		88.65
4940	1"		28	.286		97.50	15.60		113.10
4950	1-1/4"		27	.296		187	16.20		203.20
4960	1-1/2"	▼	26	.308	▼	187	16.80		203.80
6350	Y sediment strainer, PVC, socket or threaded								
6400	1/2"	1 Plum	26	.308	Ea.	49	16.80		65.80
6440	3/4"		24	.333		52	18.20		70.20
6450	1"		23	.348		62.50	19		81.50
6460	1-1/4"		21	.381		104	21		125
6470	1-1/2"	▼	20	.400	▼	104	22		126

22 05 48 – Vibration and Seismic Controls for Plumbing Piping and Equipment

22 05 48.10 Seismic Bracing Supports

0010	SEISMIC BRACING SUPPORTS								
0020	Clamps								
0030	C-clamp, for mounting on steel beam								
0040	3/8" threaded rod	1 Skwk	160	.050	Ea.	3.31	2.27		5.58
0050	1/2" threaded rod		160	.050		4.12	2.27		6.39
0060	5/8" threaded rod		160	.050		6.30	2.27		8.57
0070	3/4" threaded rod	▼	160	.050	▼	8.50	2.27		10.77
0100	Brackets								
0110	Beam side or wall malleable iron								
0120	3/8" threaded rod	1 Skwk	48	.167	Ea.	3.42	7.55		10.97
0130	1/2" threaded rod		48	.167		6.05	7.55		13.60
0140	5/8" threaded rod		48	.167		9.25	7.55		16.80
0150	3/4" threaded rod		48	.167		11.20	7.55		18.75
0160	7/8" threaded rod	▼	48	.167	▼	13.15	7.55		20.70
0170	For concrete installation, add						30%		
0180	Wall, welded steel								
0190	0 size 12" wide 18" deep	1 Skwk	34	.235	Ea.	227	10.70		237.70
0200	1 size 18" wide 24" deep		34	.235		270	10.70		280.70
0210	2 size 24" wide 30" deep	▼	34	.235	▼	355	10.70		365.70

205 Common Work Results for Plumbing

48 – Vibration and Seismic Controls for Plumbing Piping and Equipment

B.10 Seismic Bracing Supports				Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
									Labor	Equipment		
Rad, carbon steel												
Continuous thread												
1/4" thread				1 Skwk	144	.056	L.F.	1.45	2.52		3.97	5.50
3/8" thread					144	.056		1.55	2.52		4.07	5.60
1/2" thread					144	.056		2.44	2.52		4.96	6.60
5/8" thread					144	.056		3.47	2.52		5.99	7.70
3/4" thread					144	.056		6.10	2.52		8.62	10.65
7/8" thread					144	.056		7.65	2.52		10.17	12.35
For galvanized, add								30%				
Channel, steel												
3/4" x 1-1/2"				1 Skwk	80	.100	L.F.	6.70	4.54		11.24	14.35
1-1/2" x 1-1/2"					70	.114		8.80	5.20		14	17.70
1-7/8" x 1-1/2"					60	.133		30	6.05		36.05	42.50
3" x 1-1/2"					50	.160		31.50	7.25		38.75	46
Spring nuts												
3/8"				1 Skwk	100	.080	Ea.	1.94	3.63		5.57	7.75
1/2"				"	80	.100	"	2	4.54		6.54	9.20
Welding, field												
Cleaning and welding plates, bars, or rods												
To existing beams, columns, or trusses												
1" weld				1 Skwk	144	.056	Ea.	.21	2.52		2.73	4.13
2" weld					72	.111		.36	5.05		5.41	8.20
3" weld					54	.148		.56	6.75		7.31	11
4" weld					36	.222		.77	10.10		10.87	16.45
5" weld					30	.267		.97	12.10		13.07	19.75
6" weld					24	.333		1.10	15.15		16.25	24.50
Vibration absorbers												
Hangers, neoprene flex												
10-120 lb. capacity				1 Skwk	8	1	Ea.	23.50	45.50		69	96
75-550 lb. capacity					8	1		32	45.50		77.50	105
250-1100 lb. capacity					6	1.333		57.50	60.50		118	157
1000-4000 lb. capacity					6	1.333		104	60.50		164.50	209
Spring flex												
60-450 lb. capacity				1 Skwk	8	1	Ea.	66	45.50		111.50	143
85-450 lb. capacity					8	1		88	45.50		133.50	167
600-900 lb. capacity					8	1		91	45.50		136.50	170
1100-1300 lb. capacity					6	1.333		97	60.50		157.50	201
Mounts, neoprene												
135-380 lb. capacity				1 Skwk	7	1.143	Ea.	16.15	52		68.15	98
250-1100 lb. capacity					7	1.143		42.50	52		94.50	127
1000-4000 lb. capacity					5	1.600		95.50	72.50		168	217
Wire support												
Light fixture, recessed (pair)				1 Skwk	96	.083	Ea.	3.55	3.78		7.33	9.75

576 – Facility Drainage Piping Cleanouts

76.10 Cleanouts

CLEANOUTS												
Floor type												
Round or square, scarriated nickel bronze tap												
2" pipe size				1 Plum	10	.800	Ea.	167	43.50		210.50	250
3" pipe size					8	1		181	54.50		235.50	282
4" pipe size					6	1.333		251	73		324	385
Round tap, recessed for terrazzo												

22 05 Common Work Results for Plumbing

22 05 76 – Facility Drainage Piping Cleanouts

22 05 76.10 Cleanouts		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. Off
							Labor	Equipment		
1000	2" pipe size	1 Plum	9	.889	Ea.	167	48.50		215.50	257
1080	3" pipe size	↓	6	1.333	↓	251	73		324	385
1100	4" pipe size	↓	4	2	↓	251	109		360	440
1120	5" pipe size	Q-1	6	2.667	↓	320	131		451	550

22 05 76.20 Cleanout Tees

0010	CLEANOUT TEES									
0100	Cast iron, B&S, with countersunk plug									
0200	2" pipe size	1 Plum	4	2	Ea.	211	109		320	399
0220	3" pipe size	↓	3.60	2.222	↓	248	121		369	452
0240	4" pipe size	↓	3.30	2.424	↓	310	132		442	540
0280	6" pipe size	Q-1	5	3.200	↓	835	157		992	1150
0500	For round smooth access cover, same price									
4000	Plastic, tees and adapters. Add plugs									
4010	ABS, DWV									
4020	Cleanout tee, 1-1/2" pipe size	1 Plum	15	.533	Ea.	10.40	29		39.40	50
4030	2" pipe size	Q-1	27	.593	↓	11.40	29		40.40	51
4040	3" pipe size	↓	21	.762	↓	21.50	37.50		59	75
4050	4" pipe size	↓	16	1	↓	46	49		95	121
4100	Cleanout plug, 1-1/2" pipe size	1 Plum	32	.250	↓	1.80	13.65		15.45	20
4110	2" pipe size	Q-1	56	.286	↓	2.37	14.05		16.42	21
4120	3" pipe size	↓	36	.444	↓	3.82	22		25.82	33
4130	4" pipe size	↓	30	.533	↓	6.70	26		32.70	42
4180	Cleanout adapter fitting, 1-1/2" pipe size	1 Plum	32	.250	↓	2.85	13.65		16.50	21
4190	2" pipe size	Q-1	56	.286	↓	4.38	14.05		18.43	24
4200	3" pipe size	↓	36	.444	↓	11.20	22		33.20	43
4210	4" pipe size	↓	30	.533	↓	20.50	26		46.50	60
5000	PVC, DWV									
5010	Cleanout tee, 1-1/2" pipe size	1 Plum	15	.533	Ea.	12.50	29		41.50	53
5020	2" pipe size	Q-1	27	.593	↓	10.05	29		39.05	50
5030	3" pipe size	↓	21	.762	↓	30	37.50		67.50	88
5040	4" pipe size	↓	16	1	↓	38.50	49		87.50	113
5090	Cleanout plug, 1-1/2" pipe size	1 Plum	32	.250	↓	1.80	13.65		15.45	20
5100	2" pipe size	Q-1	56	.286	↓	2	14.05		16.05	21
5110	3" pipe size	↓	36	.444	↓	3.58	22		25.58	33
5120	4" pipe size	↓	30	.533	↓	5.30	26		31.30	41
5130	6" pipe size	↓	24	.667	↓	17.60	33		50.60	65
5170	Cleanout adapter fitting, 1-1/2" pipe size	1 Plum	32	.250	↓	2.40	13.65		16.05	21
5180	2" pipe size	Q-1	56	.286	↓	3.11	14.05		17.16	22
5190	3" pipe size	↓	36	.444	↓	8.75	22		30.75	40
5200	4" pipe size	↓	30	.533	↓	14.35	26		40.35	52
5210	6" pipe size	↓	24	.667	↓	42	33		75	97

RSMeans Professional Development Seminars



RSMeans Seminars are approved for Continuing Education Units (CEUs) by both the American Institute of Architects Continuing Education Systems (AIA/CES) and AACE International Certification Board.

Seminar Topics Include:

Practical Project Management for Construction Professionals

Scheduling with MSProject for Construction Professionals

Assessing Scope of Work for Facilities Construction Estimating

Site Work and Heavy Construction Estimating

Facilities Construction Estimating

Job Order Contracting

Mechanical and Electrical Estimating

Facilities Maintenance and Repair Estimating

Unit Price Estimating

RSMeans Product Training (MeansCostWorks.com and RSMeans CostWorks CD)

For more information about on-site product training,

call 1-800-334-3509, option 2.

For more information and a seminar schedule visit
reedconstructiondata.com/rsmeans/seminars.

RSMeans



**Your job
is tough
enough.**

**Finding
your next
project
doesn't
have to be.**

**SmartProject News is the easiest way to find and track
projects coming up for bid.**

Convenient.

Find projects faster with easy-to-use search features and e-mail notifications.

Unlimited.

Access all the projects in your area for one low, flat rate.

Flexible.

Choose from over 200 subscription options covering the U.S. and Canada.



Learn how SmartProject News can work for you.
Visit www.smartprojectnews.com today.

SmartProject News
Reed Construction Data

2007 Plumbing Insulation

719 - Plumbing Piping Insulation

19.10 Piping Insulation				Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Inc O&P
PIPING INSULATION									Labor	Equipment		
Rule of thumb, as a percentage of total mechanical costs							Job				10%	
Insulation req'd is based on the surface size/area to be covered												
Pipe covering (price copper tube one size less than IPS)												
Fiberglass, with all service jacket												
1" wall, 1/2" iron pipe size	G	Q-14	240	.067	L.F.	.89		2.93			3.82	5.55
1" iron pipe size	G		220	.073		1.04		3.20			4.24	6.10
2" iron pipe size	G		200	.080		1.32		3.52			4.84	6.95
3" iron pipe size	G		180	.089		1.60		3.91			5.51	7.85
4" iron pipe size	G		150	.107		2.12		4.69			6.81	9.65
2" wall, 1/2" iron pipe size	G		220	.073		2.62		3.20			5.82	7.85
6" iron pipe size	G		100	.160		5.25		7.05			12.30	16.75
8" iron pipe size	G		80	.200		6.40		8.80			15.20	20.50
10" iron pipe size	G		70	.229		7.65		10.05			17.70	24
12" iron pipe size	G		65	.246		8.55		10.85			19.40	26.50
For fiberglass with standard convos jacket, deduct						5%						
For fittings, add 3 L.F. for each fitting												
plus 4 L.F. for each flange of the fitting												
Finishes												
For .016" aluminum jacket, odd	G	Q-14	200	.080	S.F.	.94		3.52			4.46	6.55
For .010" stainless steel, odd	G	"	160	.100	"	2.79		4.40			7.19	9.90
For single layer of felt, odd						10%		10%				
For roofing paper, 45 lb. to 55 lb., odd						25%		10%				
Rubber tubing, flexible closed cell foam												
3/8" wall, 1/4" iron pipe size	G	1 Asbe	120	.067	L.F.	.38		3.26			3.64	5.45
1/2" iron pipe size	G		115	.070		.48		3.40			3.88	5.85
3/4" iron pipe size	G		115	.070		.55		3.40			3.95	5.90
1" iron pipe size	G		110	.073		.63		3.55			4.18	6.25
1-1/2" iron pipe size	G		110	.073		.85		3.55			4.40	6.50
1/2" wall, 1/4" iron pipe size	G		90	.089		.57		4.34			4.91	7.40
1/2" iron pipe size	G		89	.090		.71		4.39			5.10	7.65
3/4" iron pipe size	G		89	.090		.79		4.39			5.18	7.70
1" iron pipe size	G		88	.091		.87		4.44			5.31	7.85
1-1/2" iron pipe size	G		87	.092		1.21		4.49			5.70	8.35
2" iron pipe size	G		86	.093		1.55		4.54			6.09	8.80
3" iron pipe size	G		85	.094		2.18		4.60			6.78	9.55
3/4" wall, 1/4" iron pipe size	G		90	.089		.90		4.34			5.24	7.75
1/2" iron pipe size	G		89	.090		1.17		4.39			5.56	8.15
3/4" iron pipe size	G		89	.090		1.43		4.39			5.82	8.40
1" iron pipe size	G		88	.091		1.63		4.44			6.07	8.70
1-1/2" iron pipe size	G		87	.092		2.46		4.49			6.95	9.70
2" iron pipe size	G		86	.093		2.84		4.54			7.38	10.20
3" iron pipe size	G		85	.094		4.32		4.60			8.92	11.90
1" wall, 1/2" iron pipe size	G		86	.093		2.17		4.54			6.71	9.50
3/4" iron pipe size	G		84	.095		2.63		4.65			7.28	10.15
1" iron pipe size	G		84	.095		3.06		4.65			7.71	10.60
1-1/4" iron pipe size	G		82	.098		3.42		4.77			8.19	11.15
1-1/2" iron pipe size	G		82	.098		3.98		4.77			8.75	11.80
2" iron pipe size	G		80	.100		5.25		4.89			10.14	13.35
2-1/2" iron pipe size	G		80	.100		6.85		4.89			11.74	15.10
Rubber insulation tope, 1/8" x 2" x 30'				G		12.05	Eq.				12.05	13.25

22 11 Facility Water Distribution

22 11 13 – Facility Water Distribution Piping

22 11 13.14 Pipe, Brass		Daily Crew	Labor Output	Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total
0010	PIPE, BRASS, Plain end									
0900	Field threaded, coupling & clevis hanger assembly 10' O.C.									
0920	Regular weight									
1120	1/2" diameter	1 Plum	48	.167	L.F.	6.35	9.10		15.45	
1140	3/4" diameter		46	.174		8.45	9.50		17.95	
1160	1" diameter	▼	43	.186		12.25	10.15		22.40	
1180	1-1/4" diameter	Q-1	72	.222		18.65	10.90		29.55	
1200	1-1/2" diameter		65	.246		22.50	12.10		34.60	
1220	2" diameter	▼	53	.302	▼	31	14.85		45.85	

22 11 13.23 Pipe/Tube, Copper

0010	PIPE/TUBE, COPPER, Solder joints									
1000	Type K tubing, couplings & clevis hanger assemblies 10' O.C.									
1100	1/4" diameter	1 Plum	84	.095	L.F.	4.94	5.20		10.14	
1200	1" diameter		66	.121		12.85	6.60		19.45	
1260	2" diameter	▼	40	.200	▼	32	10.90		42.90	
2000	Type L tubing, couplings & clevis hanger assemblies 10' O.C.									
2100	1/4" diameter	1 Plum	88	.091	L.F.	2.69	4.96		7.65	
2120	3/8" diameter		84	.095		3.73	5.20		8.93	
2140	1/2" diameter		81	.099		4.30	5.40		9.70	
2160	5/8" diameter		79	.101		6.25	5.55		11.80	
2180	3/4" diameter		76	.105		6.60	5.75		12.35	
2200	1" diameter		68	.118		9.85	6.40		16.25	
2220	1-1/4" diameter		58	.138		13.45	7.55		21	
2240	1-1/2" diameter		52	.154		17.25	8.40		25.65	
2260	2" diameter	▼	42	.190		27	10.40		37.40	
2280	2-1/2" diameter	Q-1	62	.258		42	12.70		54.70	
2300	3" diameter		56	.286		57	14.05		71.05	
2320	3-1/2" diameter		43	.372		81	18.30		99.30	
2340	4" diameter		39	.410		99	20		119	
2360	5" diameter	▼	34	.471		211	23		234	
2380	6" diameter	Q-2	40	.600		300	30.50		330.50	
2400	8" diameter	"	36	.667		485	34		519	
2410	For other than full hard temper, add				▼	21%				
2590	For silver solder, add						15%			
4000	Type DWV tubing, couplings & clevis hanger assemblies 10' O.C.									
4100	1-1/4" diameter	1 Plum	60	.133	L.F.	11.95	7.30		19.25	
4120	1-1/2" diameter		54	.148		14.95	8.10		23.05	
4140	2" diameter	▼	44	.182		21	9.95		30.95	
4160	3" diameter	Q-1	58	.276		39	13.55		52.55	
4180	4" diameter		40	.400		70	19.65		89.65	
4200	5" diameter	▼	36	.444		191	22		213	
4220	6" diameter	Q-2	42	.571	▼	280	29		309	

22 11 13.44 Pipe, Steel

0010	PIPE, STEEL									
0012	The steel pipe in this section does not include fittings such as elbows, tees									
0014	For fittings either add a % (usually 25 to 35%) or see									
0015	the Mechanical or Plumbing Cost Data									
0020	All pipe sizes are to Spec. A-53 unless noted otherwise									
0050	Schedule 40, threaded, with couplings, and clevis hanger									
0060	assemblies sized for covering, 10' O.C.									
0540	Black, 1/4" diameter	1 Plum	66	.121	L.F.	6	6.60		12.60	
0550	3/8" diameter	▼	65	.123	▼	6.75	6.70		13.45	

11 Facility Water Distribution

11.13 – Facility Water Distribution Piping

11.13.44 Pipe, Steel	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
1/2" diameter	1 Plum	63	.127	L.F.	4.38	6.95		11.33	15.25
3/4" diameter		61	.131		5.15	7.15		12.30	16.45
1" diameter	↓	53	.151		7.55	8.25		15.80	21
1-1/4" diameter	Q-1	89	.180		9.50	8.85		18.35	24
1-1/2" diameter		80	.200		11.15	9.85		21	27
2" diameter		64	.250		14.90	12.30		27.20	35
2-1/2" diameter		50	.320		23	15.75		38.75	48.50
3" diameter		43	.372		29.50	18.30		47.80	60
3-1/2" diameter		40	.400		40	19.65		59.65	73.50
4" diameter	↓	36	.444	↓	43.50	22		65.50	80.50
All pipe sizes are to Spec. A-53 unless noted otherwise									
Schedule 40, threaded, with couplings and clevis hanger assemblies sized for covering, 10' O. C.									
Galvanized, 1/4" diameter	1 Plum	66	.121	L.F.	8.10	6.60		14.70	18.90
3/8" diameter		65	.123		8.95	6.70		15.65	20
1/2" diameter		63	.127		6.35	6.95		13.30	17.45
3/4" diameter		61	.131		7.60	7.15		14.75	19.15
1" diameter	↓	53	.151		10.40	8.25		18.65	24
1-1/4" diameter	Q-1	89	.180		13.30	8.85		22.15	28
1-1/2" diameter		80	.200		15.65	9.85		25.50	32
2" diameter		64	.250		21	12.30		33.30	41.50
2-1/2" diameter		50	.320		34.50	15.75		50.25	61.50
3" diameter		43	.372		44	18.30		62.30	76
3-1/2" diameter		40	.400		55.50	19.65		75.15	90.50
4" diameter	↓	36	.444	↓	63.50	22		85.50	103
Welded, sch. 40, on yoke & roll hanger assy's, sized for covering, 10' O.C.									
Black, 1" diameter	Q-15	93	.172	L.F.	6.80	8.45	.40	15.65	20.50
2" diameter		61	.262		12.35	12.90	.61	25.86	33.50
3" diameter		43	.372		25.50	18.30	.86	44.66	57
4" diameter		37	.432		35	21.50	1	57.50	71.50
5" diameter	↓	32	.500		38	24.50	1.16	63.66	80
6" diameter	Q-16	36	.667		50.50	34	1.03	85.53	108
8" diameter		29	.828		55	42	1.27	98.27	125
10" diameter		24	1		64	51	1.54	116.54	149
12" diameter	↓	19	1.263	↓	87.50	64.50	1.95	153.95	195

11.13.48 Pipe, Fittings and Valves, Steel, Grooved-Joint

PIPE, FITTINGS AND VALVES, STEEL, GROOVED-JOINT									
Fittings are ductile iron. Steel fittings noted.									
Pipe includes coupling & clevis type hanger assemblies, 10' O.C.									
Schedule 40, black									
3/4" diameter	1 Plum	71	.113	L.F.	6.30	6.15		12.45	16.20
1" diameter		63	.127		6.30	6.95		13.25	17.40
1-1/4" diameter		58	.138		8	7.55		15.55	20
1-1/2" diameter		51	.157		9.25	8.55		17.80	23
2" diameter	↓	40	.200		11.85	10.90		22.75	29.50
2-1/2" diameter	Q-1	57	.281		20.50	13.80		34.30	43.50
3" diameter		50	.320		26	15.75		41.75	52
4" diameter		45	.356		35	17.50		52.50	65
5" diameter	↓	37	.432		38.50	21.50		60	74.50
6" diameter	Q-2	42	.571	↓	53	29		82	103
Galvanized									
3/4" diameter	1 Plum	71	.113	L.F.	8.70	6.15		14.85	18.85

22 11 Facility Water Distribution

22 11 13 – Facility Water Distribution Piping

22 11 13.48 Pipe, Fittings and Valves, Steel, Grooved-Joint

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Unit
1850	1" diameter	1 Plum	63	.127	L.F.	8.25	6.95		15.20	
1860	1-1/4" diameter		58	.138		10.55	7.55		18.10	
1870	1-1/2" diameter		51	.157		12.25	8.55		20.80	
1880	2" diameter		40	.200		15.80	10.90		26.70	
1890	2-1/2" diameter	Q-1	57	.281		30	13.80		43.80	
1900	3" diameter		50	.320		38.50	15.75		54.25	
1910	4" diameter		45	.356		53.50	17.50		71	
1920	5" diameter		37	.432		58	21.50		79.50	
1930	6" diameter	Q-2	42	.571		65.50	29		94.50	
3990	Fittings: coupling material required at joints not incl. in fitting price.									
3994	Add 1 selected coupling, material only, per joint for installed price.									
4000	Elbow, 90° or 45°, pointed									
4030	3/4" diameter	1 Plum	50	.160	Ea.	46	8.75		54.75	
4040	1" diameter		50	.160		24.50	8.75		33.25	
4050	1-1/4" diameter		40	.200		24.50	10.90		35.40	
4060	1-1/2" diameter		33	.242		24.50	13.25		37.75	
4070	2" diameter		25	.320		24.50	17.45		41.95	
4080	2-1/2" diameter	Q-1	40	.400		24.50	19.65		44.15	
4090	3" diameter		33	.485		43	24		67	
4100	4" diameter		25	.640		47	31.50		78.50	
4110	5" diameter		20	.800		112	39.50		151.50	
4120	6" diameter	Q-2	25	.960		132	49		181	
4250	For galvanized elbows, add					26%				
4690	Tee, pointed									
4700	3/4" diameter	1 Plum	38	.211	Ea.	49	11.50		60.50	
4740	1" diameter		33	.242		38	13.25		51.25	
4750	1-1/4" diameter		27	.296		38	16.20		54.20	
4760	1-1/2" diameter		22	.364		38	19.85		57.85	
4770	2" diameter		17	.471		38	25.50		63.50	
4780	2-1/2" diameter	Q-1	27	.593		38	29		67	
4790	3" diameter		22	.727		52	36		88	
4800	4" diameter		17	.941		79.50	46.50		126	
4810	5" diameter		13	1.231		185	60.50		245.50	
4820	6" diameter	Q-2	17	1.412		214	72		286	
4900	For galvanized tees, add					24%				
4906	Couplings, rigid style, painted									
4908	1" diameter	1 Plum	100	.080	Ea.	18.40	4.37		22.77	
4909	1-1/4" diameter		100	.080		18.40	4.37		22.77	
4910	1-1/2" diameter		67	.119		18.40	6.50		24.90	
4912	2" diameter		50	.160		20.50	8.75		29.25	
4914	2-1/2" diameter	Q-1	80	.200		23.50	9.85		33.35	
4916	3" diameter		67	.239		27	11.75		38.75	
4918	4" diameter		50	.320		38	15.75		53.75	
4920	5" diameter		40	.400		49	19.65		68.65	
4922	6" diameter	Q-2	50	.480		65	24.50		89.50	
4940	Flexible, standard, painted									
4950	3/4" diameter	1 Plum	100	.080	Ea.	13.40	4.37		17.77	
4960	1" diameter		100	.080		13.40	4.37		17.77	
4970	1-1/4" diameter		80	.100		17.60	5.45		23.05	
4980	1-1/2" diameter		67	.119		19.20	6.50		25.70	
4990	2" diameter		50	.160		20.50	8.75		29.25	
5000	2-1/2" diameter	Q-1	80	.200		24	9.85		33.85	
5010	3" diameter		67	.239		27	11.75		38.75	

11 Facility Water Distribution

11.13 – Facility Water Distribution Piping

13.48 Pipe, Fittings and Valves, Steel, Grooved-Joint	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	Equipment	Total	Total Incl O&P
3-1/2" diameter	Q-1	57	.281	Eq.	38	13.80		51.80	63
4" diameter		50	.320		38.50	15.75		54.25	66
5" diameter	↓	40	.400		58.50	19.65		78.15	94
6" diameter	Q-2	50	.480	↓	69.50	24.50		94	114

13.64 Pipe, Stainless Steel

PIPE, STAINLESS STEEL									
Threaded, couplings and clevis hanger assemblies, 10' O.C.									
Schedule 40, type 304									
1/4" diameter	1 Plum	54	.148	L.F.	6.65	8.10		14.75	19.50
3/8" diameter		53	.151		8.45	8.25		16.70	22
1/2" diameter		52	.154		7.55	8.40		15.95	21
1" diameter	↓	45	.178		16.15	9.70		25.85	32.50
2" diameter	Q-1	57	.281		35.50	13.80		49.30	60
4" diameter	Q-2	51	.471		101	24		125	147
For small quantities, add				↓	10%				
Schedule 40, type 316									
1/4" diameter	1 Plum	54	.148	L.F.	8	8.10		16.10	21
3/8" diameter		53	.151		9.10	8.25		17.35	22.50
1/2" diameter		52	.154		11.95	8.40		20.35	26
3/4" diameter		51	.157		14.65	8.55		23.20	29
1" diameter	↓	45	.178		21	9.70		30.70	37.50
2" diameter	Q-1	57	.281		46.50	13.80		60.30	72.50
4" diameter	Q-2	51	.471		150	24		174	201
For small quantities, add				↓	10%				

13.74 Pipe, Plastic

PIPE, PLASTIC									
PVC, couplings 10' O.C., clevis hanger assemblies, 3 per 10'									
Schedule 40									
1/2" diameter	1 Plum	54	.148	L.F.	2.83	8.10		10.93	15.30
3/4" diameter		51	.157		3.17	8.55		11.72	16.40
1" diameter		46	.174		3.59	9.50		13.09	18.25
1-1/4" diameter		42	.190		4.33	10.40		14.73	20.50
1-1/2" diameter	↓	36	.222		4.59	12.15		16.74	23.50
2" diameter	Q-1	59	.271		5.75	13.35		19.10	26.50
2-1/2" diameter		56	.286		8.40	14.05		22.45	30.50
3" diameter		53	.302		10.70	14.85		25.55	34.50
4" diameter		48	.333		14.35	16.40		30.75	40.50
5" diameter		43	.372		20	18.30		38.30	49.50
6" diameter	↓	39	.410	↓	26	20		46	59.50
DWV type, schedule 40, couplings 10' O.C., clevis hanger assy's, 3 per 10'									
ABS, schedule 40, foam core type									
Plain end black									
1-1/2" diameter	1 Plum	39	.205	L.F.	2.97	11.20		14.17	20
2" diameter	Q-1	62	.258		3.44	12.70		16.14	23
3" diameter		56	.286		6.15	14.05		20.20	28
4" diameter		51	.314		8.55	15.40		23.95	33
6" diameter	↓	42	.381	↓	17.90	18.70		36.60	47.50
To delete coupling & hangers, subtract									
1-1/2" diam. to 6" diam.					43%	48%			
PVC									
1-1/4" diameter	1 Plum	42	.190	L.F.	3.21	10.40		13.61	19.25
1-1/2" diameter	"	36	.222	↓	3.01	12.15		15.16	21.50

22 11 Facility Water Distribution

22 11 13 – Facility Water Distribution Piping

22 11 13.74 Pipe, Plastic		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total
							Labor	Equipment		
4460	2" diameter	Q-1	59	.271	L.F.	3.46	13.35		16.81	
4470	3" diameter		53	.302		6.15	14.85		21	
4480	4" diameter		48	.333		8.30	16.40		24.70	
4490	6" diameter	▼	39	.410	▼	15.65	20		35.65	
5300	CPVC, socket joint, couplings 10' O.C., clevis hanger assemblies, 3 per 10'									
5302	Schedule 40									
5304	1/2" diameter	1 Plum	54	.148	L.F.	3.58	8.10		11.68	
5305	3/4" diameter		51	.157		4.17	8.55		12.72	
5306	1" diameter		46	.174		5.25	9.50		14.75	
5307	1-1/4" diameter		42	.190		6.60	10.40		17	
5308	1-1/2" diameter	▼	36	.222		7.60	12.15		19.75	
5309	2" diameter	Q-1	59	.271		9.35	13.35		22.70	
5310	2-1/2" diameter		56	.286		15.65	14.05		29.70	
5311	3" diameter	▼	53	.302	▼	18.85	14.85		33.70	
5360	CPVC, threaded, couplings 10' O.C., clevis hanger assemblies, 3 per 10'									
5380	Schedule 40									
5460	1/2" diameter	1 Plum	54	.148	L.F.	4.34	8.10		12.44	
5470	3/4" diameter		51	.157		5.50	8.55		14.05	
5480	1" diameter		46	.174		6.60	9.50		16.10	
5490	1-1/4" diameter		42	.190		7.65	10.40		18.05	
5500	1-1/2" diameter	▼	36	.222		8.50	12.15		20.65	
5510	2" diameter	Q-1	59	.271		10.45	13.35		23.80	
5520	2-1/2" diameter		56	.286		16.80	14.05		30.85	
5530	3" diameter	▼	53	.302	▼	20.50	14.85		35.35	
7280	PEX, flexible, no couplings or hangers									
7282	Note: For labor costs add 25% to the couplings and fittings labor total.									
7285	For fittings see section 23 83 16.10 7000									
7300	Non-barrier type, hot/cold tubing rolls									
7310	1/4" diameter x 100'				L.F.	.46			.46	
7350	3/8" diameter x 100'					.51			.51	
7360	1/2" diameter x 100'					.57			.57	
7370	1/2" diameter x 500'					.57			.57	
7380	1/2" diameter x 1000'					.57			.57	
7400	3/4" diameter x 100'					1.05			1.05	
7410	3/4" diameter x 500'					1.05			1.05	
7420	3/4" diameter x 1000'					1.05			1.05	
7460	1" diameter x 100'					1.80			1.80	
7470	1" diameter x 300'					1.80			1.80	
7480	1" diameter x 500'					1.78			1.78	
7500	1-1/4" diameter x 100'					3.04			3.04	
7510	1-1/4" diameter x 300'					3.04			3.04	
7540	1-1/2" diameter x 100'					4.15			4.15	
7550	1-1/2" diameter x 300'				▼	4.15			4.15	
7596	Most sizes available in red or blue									
7700	Non-barrier type, hot/cold tubing straight lengths									
7710	1/2" diameter x 20'				L.F.	.57			.57	
7750	3/4" diameter x 20'					1.05			1.05	
7760	1" diameter x 20'					1.80			1.80	
7770	1-1/4" diameter x 20'					3.04			3.04	
7780	1-1/2" diameter x 20'					4.15			4.15	
7790	2" diameter				▼	8.10			8.10	
7796	Most sizes available in red or blue									

11 Facility Water Distribution

1 19 – Domestic Water Piping Specialties

19.10 Flexible Connectors				Daily Crew Output	Labor- Hours	Unit	Material	2012 Bare Costs Labor Equipment	Total	Total Inc O&P
FLEXIBLE CONNECTORS , Corrugated, 7/8" O.D., 1/2" I.D.										
Gas, seamless brass, steel fittings										
	12" long	1 Plum	36	.222	Ea.	16.30	12.15		28.45	36
	18" long		36	.222		20	12.15		32.15	40.50
	24" long		34	.235		24	12.85		36.85	46
	36" long		32	.250		28.50	13.65		42.15	52
	60" long		30	.267		43	14.55		57.55	69.50
Water, copper tubing, dielectric separators										
	12" long	1 Plum	36	.222	Ea.	15.95	12.15		28.10	36
	24" long	"	34	.235	"	23.50	12.85		36.35	45.50
19.14 Flexible Metal Hose										
FLEXIBLE METAL HOSE , Connectors, standard lengths										
Bronze braided, bronze ends										
	3/8" diameter x 12"	1 Stpi	26	.308	Ea.	18.85	17.15		36	47
	3/4" diameter x 12"		20	.400		26.50	22.50		49	62.50
	1" diameter x 18"		19	.421		34	23.50		57.50	73
	1-1/2" diameter x 18"		13	.615		53.50	34.50		88	111
	2" diameter x 18"		11	.727		64.50	40.50		105	132
19.26 Pressure Regulators										
PRESSURE REGULATORS										
Steam, high capacity, bronze body, stainless steel trim										
	Threaded, 1/2" diameter	1 Stpi	24	.333	Ea.	1,550	18.55		1,568.55	1,750
	3/4" diameter		24	.333		1,550	18.55		1,568.55	1,750
	1" diameter		19	.421		1,750	23.50		1,773.50	1,950
	1-1/4" diameter		15	.533		1,925	29.50		1,954.50	2,175
	1-1/2" diameter		13	.615		2,200	34.50		2,234.50	2,475
	2" diameter		11	.727		2,700	40.50		2,740.50	3,025
	2-1/2" diameter	Q-5	12	1.333		3,375	67		3,442	3,825
	3" diameter	"	11	1.455		3,850	73		3,923	4,350
Flanged connection, iron body, 125 lb. W.S.P.										
	3" diameter	Q-5	11	1.455	Ea.	4,225	73		4,298	4,750
	4" diameter	"	5	3.200	"	5,325	160		5,485	6,100
19.38 Water Supply Meters										
WATER SUPPLY METERS										
Domestic/commercial, bronze										
Threaded										
	5/8" diameter, to 20 GPM	1 Plum	16	.500	Ea.	46	27.50		73.50	91.50
	3/4" diameter, to 30 GPM		14	.571		83.50	31		114.50	139
	1" diameter, to 50 GPM		12	.667		127	36.50		163.50	195
Threaded/flanged										
	1-1/2" diameter, to 100 GPM	1 Plum	8	1	Ea.	310	54.50		364.50	425
	2" diameter, to 160 GPM	"	6	1.333	"	420	73		493	570
Flanged, compound										
	3" diameter, 320 GPM	Q-1	3	5.333	Ea.	2,850	262		3,112	3,550
	4" diameter, to 500 GPM		1.50	10.667		4,575	525		5,100	5,825
	6" diameter, to 1,000 GPM		1	16		7,300	785		8,085	9,200
	8" diameter, to 1,800 GPM		.80	20		11,500	985		12,485	14,100
19.42 Backflow Preventers										
BACKFLOW PREVENTERS , Includes valves										
and four test cocks, corrosion resistant, automatic operation										
Reduced pressure principle										

22 11 Facility Water Distribution

22 11 19 – Domestic Water Piping Specialties

22 11 19.42 Backflow Preventers		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Est. Unit
							Labor	Equipment		
4100	Threaded, bronze, valves are ball									
4120	3/4" pipe size	1 Plum	16	.500	Eq.	420	27.50		447.50	50
4140	1" pipe size		14	.571		455	31		486	50
4150	1-1/4" pipe size		12	.667		835	36.50		871.50	70
4160	1-1/2" pipe size		10	.800		915	43.50		958.50	100
4180	2" pipe size	▼	7	1.143	▼	1,025	62.50		1,087.50	120
5000	Flanged, bronze, valves are OS&Y									
5060	2-1/2" pipe size	Q-1	5	3.200	Eq.	6,100	157		6,257	600
5080	3" pipe size		4.50	3.556		7,100	175		7,275	800
5100	4" pipe size	▼	3	5.333		8,325	262		8,587	950
5120	6" pipe size	Q-2	3	8	▼	13,300	410		13,710	1500
5600	Flanged, iron, valves are OS&Y									
5660	2-1/2" pipe size	Q-1	5	3.200	Eq.	3,150	157		3,307	370
5680	3" pipe size		4.50	3.556		3,425	175		3,600	400
5700	4" pipe size	▼	3	5.333		3,800	262		4,062	450
5720	6" pipe size	Q-2	3	8		5,500	410		5,910	600
5740	8" pipe size		2	12		9,675	610		10,285	1150
5760	10" pipe size	▼	1	24	▼	12,900	1,225		14,125	1600

22 11 19.50 Vacuum Breakers

0010	VACUUM BREAKERS									
0013	See also backflow preventers Section 22 11 19.42									
1000	Anti-siphon continuous pressure type									
1010	Max. 150 PSI - 210°F									
1020	Bronze body									
1030	1/2" size	1 Stpi	24	.333	Eq.	171	18.55		189.55	20
1040	3/4" size		20	.400		171	22.50		193.50	20
1050	1" size		19	.421		177	23.50		200.50	20
1060	1-1/4" size		15	.533		350	29.50		379.50	40
1070	1-1/2" size		13	.615		430	34.50		464.50	50
1080	2" size	▼	11	.727	▼	445	40.50		485.50	50
1200	Max. 125 PSI with atmospheric vent									
1210	Brass, in-line construction									
1220	1/4" size	1 Stpi	24	.333	Eq.	68	18.55		86.55	10
1230	3/8" size	"	24	.333		68	18.55		86.55	10
1260	For polished chrome finish, add				▼	13%				
2000	Anti-siphon, non-continuous pressure type									
2010	Hot or cold water 125 PSI - 210°F									
2020	Bronze body									
2030	1/4" size	1 Stpi	24	.333	Eq.	43.50	18.55		62.05	10
2040	3/8" size		24	.333		43.50	18.55		62.05	10
2050	1/2" size		24	.333		49	18.55		67.55	10
2060	3/4" size		20	.400		58	22.50		80.50	10
2070	1" size		19	.421		91	23.50		114.50	10
2080	1-1/4" size		15	.533		159	29.50		188.50	20
2090	1-1/2" size		13	.615		187	34.50		221.50	20
2100	2" size		11	.727		291	40.50		331.50	30
2110	2-1/2" size		8	1		840	55.50		895.50	100
2120	3" size	▼	6	1.333	▼	1,125	74.50		1,199.50	130
2150	For polished chrome finish, add					50%				

22 11 19.54 Water Hammer Arresters/Shock Absorbers

0010	WATER HAMMER ARRESTERS/SHOCK ABSORBERS									
0490	Copper									

11 Facility Water Distribution

1 19 - Domestic Water Piping Specialties

19.54 Water Hammer Arresters/Shock Absorbers		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
							Labor	Equipment		
3/4" mole I.P.S. For 1 to 11 fixtures	1 Plum	12	.667	Eo.	21.50	36.50			58	79
1" mole I.P.S. For 12 to 32 fixtures		8	1		34	54.50			88.50	120
1-1/4" mole I.P.S. For 33 to 60 fixtures		8	1		44	54.50			98.50	131
1-1/2" mole I.P.S. For 61 to 113 fixtures		8	1		63	54.50			117.50	152
2" mole I.P.S. For 114 to 154 fixtures		8	1		92	54.50			146.50	184
2-1/2" mole I.P.S. For 155 to 330 fixtures	↓	4	2	↓	285	109			394	480

19.64 Hydrants

HYDRANTS										
Wall type, moderate climate, bronze, enclosed										
3/4" IPS connection	1 Plum	16	.500	Eo.	650	27.50			677.50	755
1" IPS connection	"	14	.571		745	31			776	865
Anti-siphon type, 3/4" connection				↓	560				560	615
Non-freeze, bronze, exposed										
3/4" IPS connection, 4" to 9" thick wall	1 Plum	14	.571	Eo.	440	31			471	530
10" to 14" thick wall	↓	12	.667		475	36.50			511.50	575
15" to 19" thick wall		12	.667		530	36.50			566.50	640
20" to 24" thick wall	↓	10	.800	↓	575	43.50			618.50	695
For 1" IPS connection, odd					15%	10%				
For 3/4" adapter type vacuum breaker, odd				Eo.	55.50				55.50	61
For anti-siphon type, odd				"	115				115	126
Non-freeze bronze, enclosed, anti-siphon type										
3/4" IPS connection, 5" to 9" thick wall	1 Plum	14	.571	Eo.	1,125	31			1,156	1,275
15" to 19" thick wall	"	12	.667	"	1,200	36.50			1,236.50	1,375
Ground box type, bronze frame, 3/4" IPS connection										
Non-freeze, all bronze, polished face, set flush										
2 feet depth of bury	1 Plum	8	1	Eo.	830	54.50			884.50	995
6 feet depth of bury	↓	7	1.143		1,075	62.50			1,137.50	1,300
8 feet depth of bury	↓	5	1.600		1,200	87.50			1,287.50	1,450
For 1" IPS connection, odd					15%	10%				
For 2" connection, odd					445%	24%				
For topped drain port in box, odd				↓	75				75	82.50
Moderate climate, all bronze, polished face and scoriated cover, set flush										
3/4" IPS connection	1 Plum	16	.500	Eo.	575	27.50			602.50	670
1" IPS connection	"	14	.571		705	31			736	820
For topped drain port in box, add				↓	75				75	82.50

1 23 - Domestic Water Pumps

23.10 General Utility Pumps

GENERAL UTILITY PUMPS										
Single stage										
Double suction,										
75 HP, to 2500 GPM	Q-3	.28	114	Eo.	19,800	5,950			25,750	30,800
100 HP, to 3000 GPM	↓	.26	123	↓	25,200	6,400			31,600	37,400
150 HP, to 4000 GPM	↓	.24	133	↓	35,300	6,925			42,225	49,400

22 13 Facility Sanitary Sewerage

22 13 16 – Sanitary Waste and Vent Piping

22 13 16.20 Pipe, Cast Iron

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	
0010	PIPE, CAST IRON , Soil, on clevis hanger assemblies, 5' O.C.									
0020	Single hub, service wt., lead & oakum joints 10' O.C.									
2120	2" diameter	Q-1	63	.254	L.F.	8.50	12.50		21	
2140	3" diameter		60	.267		11.95	13.10		25.05	
2160	4" diameter	▼	55	.291		15.45	14.30		29.75	
2180	5" diameter	Q-2	76	.316		21	16.10		37.10	
2200	6" diameter	"	73	.329		26.50	16.75		43.25	
2220	8" diameter	Q-3	59	.542		41	28		69	
2240	10" diameter	▼	54	.593		66.50	31		97.50	
2260	12" diameter	▼	48	.667		94	34.50		128.50	
2320	For service weight, double hub, odd					10%				
2340	For extra heavy, single hub, odd					48%	4%			
2360	For extra heavy, double hub, odd				▼	71%	4%			
2400	Lead for caulking, (1#/dia in)	Q-1	160	.100	Lb.	1.04	4.92		5.96	
2420	Oakum for caulking, (1/8#/dia in)	"	40	.400	"	4.20	19.65		23.85	
4000	No hub, couplings 10' O.C.									
4100	1-1/2" diameter	Q-1	71	.225	L.F.	8.45	11.10		19.55	
4120	2" diameter		67	.239		8.65	11.75		20.40	
4160	4" diameter	▼	58	.276	▼	15.70	13.55		29.25	

22 13 16.50 Shower Drains

0010	SHOWER DRAINS									
2780	Shower, with strainer, uniform diam. trap, bronze tap									
2800	2" and 3" pipe size	Q-1	8	2	Eq.	360	98.50		458.50	
2820	4" pipe size	"	7	2.286		400	112		512	
2840	For galvanized body, odd				▼	160			160	

22 13 16.60 Traps

0010	TRAPS									
0030	Cast iron, service weight									
0050	Running P trap, without vent									
1100	2"	Q-1	16	1	Eq.	122	49		171	
1140	3"		14	1.143		122	56		178	
1150	4"	▼	13	1.231		122	60.50		182.50	
1160	6"	Q-2	17	1.412	▼	530	72		602	
1180	Running trap, single hub, with vent									
2080	3" pipe size, 3" vent	Q-1	14	1.143	Eq.	96.50	56		152.50	
2120	4" pipe size, 4" vent	"	13	1.231		131	60.50		191.50	
2300	For double hub, vent, odd					10%	20%			
3000	P trap, B&S, 2" pipe size	Q-1	16	1		29	49		78	
3040	3" pipe size	"	14	1.143	▼	43	56		99	
3350	Deep seal trap, B&S									
3400	1-1/4" pipe size	Q-1	14	1.143	Eq.	46	56		102	
3410	1-1/2" pipe size		14	1.143		46	56		102	
3420	2" pipe size		14	1.143		41	56		97	
3440	3" pipe size	▼	12	1.333	▼	53	65.50		118.50	
4700	Copper, drainage, drum trap									
4800	3" x 5" solid, 1-1/2" pipe size	1 Plum	16	.500	Eq.	256	27.50		283.50	
4840	3" x 6" swivel, 1-1/2" pipe size	"	16	.500	"	405	27.50		432.50	
5100	P trap, standard pattern									
5200	1-1/4" pipe size	1 Plum	18	.444	Eq.	189	24.50		213.50	
5240	1-1/2" pipe size		17	.471		183	25.50		208.50	
5260	2" pipe size		15	.533		282	29		311	
5280	3" pipe size	▼	11	.727	▼	675	39.50		714.50	

13 Facility Sanitary Sewerage

13.16 – Sanitary Waste and Vent Piping

16.60 Traps	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	2012 Bare Costs Equipment	Total	Total Ind O&P
With cleanout, swivel joint and slip joint									
1-1/4" pipe size	1 Plum	18	.444	Ea.	134	24.50		158.50	184
1-1/2" pipe size	"	17	.471	"	278	25.50		303.50	345

16.80 Vent Flashing and Caps

VENT FLASHING AND CAPS									
Vent caps									
Cast iron									
2-1/2" - 3-5/8" pipe	1 Plum	21	.381	Ea.	40	21		61	75.50
4" - 4-1/8" pipe	"	19	.421	"	48	23		71	87.50
Vent flashing									
Aluminum with lead ring									
1-1/4" pipe	1 Plum	20	.400	Ea.	11.20	22		33.20	45.50
1-1/2" pipe		20	.400		13.40	22		35.40	47.50
2" pipe		18	.444		12.05	24.50		36.55	50
3" pipe		17	.471		13.30	25.50		38.80	53.50
4" pipe		16	.500		16.05	27.50		43.55	58.50
Copper with neoprene ring									
1-1/4" pipe	1 Plum	20	.400	Ea.	19.95	22		41.95	55
1-1/2" pipe		20	.400		19.95	22		41.95	55
2" pipe		18	.444		21	24.50		45.50	59.50
3" pipe		17	.471		24.50	25.50		50	66
4" pipe		16	.500		27	27.50		54.50	71

13.19 – Sanitary Waste Piping Specialties

19.13 Sanitary Drains

SANITARY DRAINS									
Deck, auto park, C.I., 13" top									
3", 4", 5", and 6" pipe size	Q-1	8	2	Ea.	1,225	98.50		1,323.50	1,500
For galvanized body, add				"	660			660	725
Floor, medium duty, C.I., deep flange, 7" dia top									
2" and 3" pipe size	Q-1	12	1.333	Ea.	171	65.50		236.50	287
For galvanized body, add					82			82	90
With polished bronze top					267			267	293
Heavy duty, with sediment bucket, C.I., 12" dia. loose grate									
2", 3", 4", 5", and 6" pipe size	Q-1	9	1.778	Ea.	585	87.50		672.50	775
With polished bronze top				"	830			830	915
Heavy duty, cleanout & trap w/bucket, C.I., 15" top									
2", 3", and 4" pipe size	Q-1	6	2.667	Ea.	5,575	131		5,706	6,350
For galvanized body, add					1,425			1,425	1,575
With polished bronze top					6,200			6,200	6,825

13.23 – Sanitary Waste Interceptors

23.10 Interceptors

INTERCEPTORS									
Grease, fabricated steel, 4 GPM, 8 lb. fat capacity	1 Plum	4	2	Ea.	1,000	109		1,109	1,275
7 GPM, 14 lb. fat capacity		4	2		1,400	109		1,509	1,725
10 GPM, 20 lb. fat capacity		4	2		1,650	109		1,759	2,000
15 GPM, 30 lb. fat capacity		4	2		2,450	109		2,559	2,850
20 GPM, 40 lb. fat capacity		3	2.667		2,975	146		3,121	3,500
50 GPM, 100 lb. fat capacity	Q-1	2	8		8,800	395		9,195	10,300
100 GPM, 200 lb. fat capacity	"	2	8		12,500	395		12,895	14,300
For seepage pan, add					7%				
Hair, cast iron, 1-1/4" and 1-1/2" pipe connection	1 Plum	8	1	Ea.	380	54.50		434.50	500

22 13 Facility Sanitary Sewerage

22 13 23 – Sanitary Waste Interceptors

22 13 23.10 Interceptors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
					Ea.		Labor	Equipment	
3100	For chrome-plated cast iron, add					232			232
4000	Oil, fabricated steel, 10 GPM, 2" pipe size	1 Plum	4	2		2,250	109		2,359
4100	15 GPM, 2" or 3" pipe size		4	2		3,100	109		3,209
4120	20 GPM, 2" or 3" pipe size	▼	3	2.667		3,725	146		3,871
4220	100 GPM, 3" pipe size	Q-1	2	8		12,500	395		12,895
6000	Solids, precious metals recovery, C.I., 1-1/4" to 2" pipe	1 Plum	4	2		570	109		679
6100	Dental Lab., large, C.I., 1-1/2" to 2" pipe	"	3	2.667	▼	2,000	146		2,146

22 13 29 – Sanitary Sewerage Pumps

22 13 29.13 Wet-Pit-Mounted, Vertical Sewerage Pumps

0010	WET-PIT-MOUNTED, VERTICAL SEWERAGE PUMPS								
0020	Controls incl. alarm/disconnect panel w/wire. Excavation not included								
0260	Simplex, 9 GPM at 60 PSIG, 91 gal. tank				Ea.	3,150			3,150
0300	Unit with manway, 26" I.D., 18" high					3,575			3,575
0340	26" I.D., 36" high					3,625			3,625
0380	43" I.D., 4' high				▼	3,750			3,750
3000	Indoor residential type installation								
3020	Simplex, 9 GPM at 60 PSIG, 91 gal. HDPE tank				Ea.	3,125			3,125

22 13 29.14 Sewage Ejector Pumps

0010	SEWAGE EJECTOR PUMPS, With operating and level controls								
0100	Simplex system incl. tank, cover, pump 15' head								
0500	37 gal. PE tank, 12 GPM, 1/2 HP, 2" discharge	Q-1	3.20	5	Ea.	455	246		701
0510	3" discharge		3.10	5.161		495	254		749
0530	87 GPM, .7 HP, 2" discharge		3.20	5		690	246		936
0540	3" discharge		3.10	5.161		750	254		1,004
0600	45 gal. coated stl tank, 12 GPM, 1/2 HP, 2" discharge		3	5.333		805	262		1,067
0610	3" discharge		2.90	5.517		840	271		1,111
0630	87 GPM, .7 HP, 2" discharge		3	5.333		1,025	262		1,287
0640	3" discharge		2.90	5.517		1,100	271		1,371
0660	134 GPM, 1 HP, 2" discharge		2.80	5.714		1,125	281		1,406
0680	3" discharge		2.70	5.926		1,175	291		1,466
0700	70 gal. PE tank, 12 GPM, 1/2 HP, 2" discharge		2.60	6.154		880	300		1,180
0710	3" discharge		2.40	6.667		935	330		1,265
0730	87 GPM, 0.7 HP, 2" discharge		2.50	6.400		1,125	315		1,440
0740	3" discharge		2.30	6.957		1,200	340		1,540
0760	134 GPM, 1 HP, 2" discharge		2.20	7.273		1,225	355		1,580
0770	3" discharge	▼	2	8	▼	1,300	395		1,695

22 14 Facility Storm Drainage

22 14 23 – Storm Drainage Piping Specialties

22 14 23.33 Backwater Valves

0010	BACKWATER VALVES, C.I. Body								
6980	Brass gate and automatic flapper valves								
7000	3" and 4" pipe size	Q-1	13	1.231	Ea.	1,725	60.50		1,785.50
7100	5" and 6" pipe size	"	13	1.231	"	2,675	60.50		2,735.50
7240	Brass flapper valve, batted cover								
7260	2" pipe size	Q-1	16	1	Ea.	510	49		559
7300	4" pipe size	"	13	1.231		975	60.50		1,035.50
7340	6" pipe size	Q-2	17	1.412	▼	1,400	72		1,472

14 Facility Storm Drainage

4 26 – Facility Storm Drains

26.13 Roof Drains	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
ROOF DRAINS									
Cornice, C.I., 45° or 90° outlet									
3" and 4" pipe size	Q-1	12	1.333	Ea.	360	65.50		425.50	495
For galvanized body, add					64.50			64.50	71
For polished bronze dome, add				▼	50			50	55
Roof, flat metal deck, C.I. body, 12" C.I. dome									
3" pipe size	Q-1	14	1.143	Ea.	330	56		386	450
6" pipe size	"	10	1.600	"	540	78.50		618.50	710
Main, all aluminum, 12" low profile dome									
2", 3" and 4" pipe size	Q-1	14	1.143	Ea.	370	56		426	495

26.16 Facility Area Drains

FACILITY AREA DRAINS									
Scupper floor, oblique strainer, C.I.									
6" x 7" top, 2", 3" and 4" pipe size	Q-1	16	1	Ea.	240	49		289	340
8" x 12" top, 5" and 6" pipe size	"	14	1.143		490	56		546	625
For galvanized body, add					40%				
For polished bronze strainer, add				▼	85%				

26.19 Facility Trench Drains

FACILITY TRENCH DRAINS									
Trench, floor, hvy duty, modular, C.I., 12" x 12" top									
2", 3", 4", 5", & 6" pipe size	Q-1	8	2	Ea.	760	98.50		858.50	990
For unit with polished bronze top	"	8	2	"	1,125	98.50		1,223.50	1,400
Trench, floor, for cement concrete encasement									
Not including trenching or concrete									
Polyester polymer concrete									
4" internal width, with grate									
Light duty steel grate	Q-1	120	.133	L.F.	32	6.55		38.55	45.50
Medium duty steel grate		115	.139		42.50	6.85		49.35	57
Heavy duty iron grate	▼	110	.145	▼	56.50	7.15		63.65	73.50
12" internal width, with grate									
Heavy duty galvanized grate	Q-1	80	.200	L.F.	154	9.85		163.85	185
Fiberglass									
8" internal width, with grate									
Medium duty galvanized grate	Q-1	115	.139	L.F.	96.50	6.85		103.35	116
Heavy duty iron grate	"	110	.145	"	120	7.15		127.15	143

4 29 – Sump Pumps

29.13 Wet-Pit-Mounted, Vertical Sump Pumps

WET-PIT-MOUNTED, VERTICAL SUMP PUMPS									
Molded PVC base, 21 GPM at 15' head, 1/3 HP	1 Plum	5	1.600	Ea.	128	87.50		215.50	272
Iron base, 21 GPM at 15' head, 1/3 HP		5	1.600		156	87.50		243.50	305
Solid brass, 21 GPM at 15' head, 1/3 HP	▼	5	1.600	▼	272	87.50		359.50	430

29.16 Submersible Sump Pumps

SUBMERSIBLE SUMP PUMPS									
Sump pump, automatic									
Plastic, 1-1/4" discharge, 1/4 HP	1 Plum	6	1.333	Ea.	126	73		199	249
1/3 HP		5	1.600		189	87.50		276.50	340
1/2 HP		5	1.600		207	87.50		294.50	360
1-1/2" discharge, 1/2 HP		4	2		256	109		365	445
Cast iron, 1-1/4" discharge, 1/4 HP		6	1.333		177	73		250	305
1/3 HP		6	1.333		209	73		282	340
1/2 HP	▼	5	1.600	▼	252	87.50		339.50	410

22 31 Domestic Water Softeners

22 31 13 – Residential Domestic Water Softeners

22 31 13.10 Residential Water Softeners		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total
0010 RESIDENTIAL WATER SOFTENERS							Labor	Equipment		
7350	Water softener, automatic, to 30 grains per gallon	2 Plum	5	3.200	Eq.	340	175			515
7400	To 100 grains per gallon	"	4	4	"	680	218			898

22 31 16 – Commercial Domestic Water Softeners

22 31 16.10 Water Softeners

0010 WATER SOFTENERS										
5800	Softener systems, automatic, intermediate sizes									
5820	available, may be used in multiples.									
6000	Hardness capacity between regenerations and flow									
6100	150,000 grains, 37 GPM cont., 51 GPM peak	Q-1	1.20	13.333	Eq.	4,350	655			5,005
6200	300,000 grains, 81 GPM cont., 113 GPM peak		1	16		8,925	785			9,710
6300	750,000 grains, 160 GPM cont., 230 GPM peak		.80	20		11,600	985			12,585
6400	900,000 grains, 185 GPM cont., 270 GPM peak	▼	.70	22.857	▼	18,700	1,125			19,825

22 33 Electric Domestic Water Heaters

22 33 13 – Instantaneous Electric Domestic Water Heaters

22 33 13.10 Hot Water Dispensers

0010 HOT WATER DISPENSERS										
0160	Commercial, 100 cup, 11.3 amp	1 Plum	14	.571	Eq.	249	31			280
3180	Household, 60 cup	"	14	.571	"	245	31			276

22 33 30 – Residential, Electric Domestic Water Heaters

22 33 30.13 Residential, Small-Capacity Elec. Water Heaters

0010 RESIDENTIAL, SMALL-CAPACITY ELECTRIC DOMESTIC WATER HEATERS										
1000	Residential, electric, glass lined tank, 5 yr., 10 gal., single element	1 Plum	2.30	3.478	Eq.	385	190			575
1040	20 gallon, single element		2.20	3.636		440	199			639
1060	30 gallon, double element		2.20	3.636		575	199			774
1080	40 gallon, double element		2	4		615	218			833
1100	52 gallon, double element		2	4		690	218			908
1180	120 gallon, double element	▼	1.40	5.714	▼	1,450	310			1,760

22 33 33 – Light-Commercial Electric Domestic Water Heaters

22 33 33.10 Commercial Electric Water Heaters

0010 COMMERCIAL ELECTRIC WATER HEATERS										
4000	Commercial, 100° rise. NOTE: for each size tank, a range of									
4010	heaters between the ones shown are available									
4020	Electric									
4100	5 gal., 3 kW, 12 GPH, 208 volt	1 Plum	2	4	Eq.	2,625	218			2,843
4120	10 gal., 6 kW, 25 GPH, 208 volt		2	4		2,900	218			3,118
4140	50 gal., 9 kW, 37 GPH, 208 volt		1.80	4.444		3,975	243			4,218
4160	50 gal., 36 kW, 148 GPH, 208 volt	▼	1.80	4.444		6,075	243			6,318
4300	200 gal., 15 kW, 61 GPH, 480 volt	Q-1	1.70	9.412		18,800	465			19,265
4320	200 gal., 120 kW, 490 GPH, 480 volt		1.70	9.412		25,600	465			26,065
4460	400 gal., 30 kW, 123 GPH, 480 volt	▼	1	16		25,500	785			26,285
5400	Modulating step control, 2-5 steps	1 Elec	5.30	1.509		900	78			978
5440	6-10 steps		3.20	2.500		1,150	129			1,279
5460	11-15 steps		2.70	2.963		1,625	153			1,778
5480	16-20 steps	▼	1.60	5	▼	2,400	258			2,658

34 Fuel-Fired Domestic Water Heaters

4 13 – Instantaneous, Tankless, Gas Domestic Water Heaters

33.10 Instantaneous, Tankless, Gas Water Heaters	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs Labor	2012 Base Costs Equipment	Total	Total Incl O&P
INSTANTANEOUS, TANKLESS, GAS WATER HEATERS									
Natural gas/propane, 3.2 GPM	G 1 Plum	2	4	Eq.	535	218		753	920
6.4 GPM		1.90	4.211		630	230		860	1,050
8.4 GPM		1.80	4.444		755	243		998	1,200
9.5 GPM		1.60	5		930	273		1,203	1,425

4 30 – Residential Gas Domestic Water Heaters

30.13 Residential, Atmos, Gas Domestic Wtr Heaters

RESIDENTIAL, ATMOSPHERIC, GAS DOMESTIC WATER HEATERS									
Gas fired, foam lined tank, 10 yr., vent not incl.									
30 gallon	1 Plum	2	4	Eq.	895	218		1,113	1,325
75 gallon		1.50	5.333		1,225	291		1,516	1,800
100 gallon		1.30	6.154		1,525	335		1,860	2,175

4 36 – Commercial Gas Domestic Water Heaters

36.13 Commercial, Atmos., Gas Domestic Water Htrs.

COMMERCIAL, ATMOSPHERIC, GAS DOMESTIC WATER HEATERS									
Gas fired, flush jacket, std. controls, vent not incl.									
75 MBH input, 73 GPH	1 Plum	1.40	5.714	Eq.	1,575	310		1,885	2,200
98 MBH input, 95 GPH		1.40	5.714		4,575	310		4,885	5,525
120 MBH input, 110 GPH		1.20	6.667		4,975	365		5,340	6,000
200 MBH input, 192 GPH		.60	13.333		8,025	730		8,755	9,925
250 MBH input, 245 GPH		.50	16		8,375	875		9,250	10,500
For low water cutoff, add		8	1		315	54.50		369.50	430
For bronze body hot water circulator, add		4	2		1,875	109		1,984	2,250

4 46 – Oil-Fired Domestic Water Heaters

46.10 Residential Oil-Fired Water Heaters

RESIDENTIAL OIL-FIRED WATER HEATERS									
Oil fired, glass lined tank, 5 yr., vent not included, 30 gallon	1 Plum	2	4	Eq.	665	218		883	1,050
50 gallon		1.80	4.444		1,050	243		1,293	1,525
70 gallon		1.50	5.333		1,275	291		1,566	1,850

46.20 Commercial Oil-Fired Water Heaters

COMMERCIAL OIL-FIRED WATER HEATERS									
Oil fired, glass lined, UL listed, std. controls, vent not incl.									
140 gal., 140 MBH input, 134 GPH	Q-1	2.13	7.512	Eq.	14,900	370		15,270	17,000
140 gal., 199 MBH input, 191 GPH		2	8		15,400	395		15,795	17,500
140 gal., 255 MBH input, 247 GPH		1.60	10		15,900	490		16,390	18,100
140 gal., 540 MBH input, 519 GPH		.96	16.667		21,000	820		21,820	24,300
140 gal., 720 MBH input, 691 GPH		.92	17.391		21,400	855		22,255	24,800
201 gal., 1250 MBH input, 1200 GPH	Q-2	1.22	19.672		32,900	1,000		33,900	37,600
201 gal., 1500 MBH input, 1441 GPH	"	1.16	20.690		35,700	1,050		36,750	40,900
For low water cutoff, add	1 Plum	8	1		300	54.50		354.50	415
For bronze body hot water circulator, add	"	4	2		710	109		819	945

22 35 Domestic Water Heat Exchangers

22 35 30 – Water Heating by Steam

22 35 30.10 Water Heating Transfer Package		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total
							Labor	Equipment		
0010	WATER HEATING TRANSFER PACKAGE, Complete controls,									
0020	expansion tank, converter, air separator									
1000	Hot water, 180°F enter, 200°F leaving, 15# steam									
1010	One pump system, 28 GPM	Q-6	.75	32	EO.	18,700	1,675		20,375	20,375
1020	35 GPM		.70	34.286		20,300	1,775		22,075	22,075
1040	55 GPM		.65	36.923		23,900	1,925		25,825	25,825
1060	130 GPM		.55	43.636		30,100	2,275		32,375	32,375
1080	255 GPM		.40	60		39,400	3,125		42,525	42,525
1100	550 GPM		.30	80		50,000	4,150		54,150	54,150

22 41 Residential Plumbing Fixtures

22 41 06 – Plumbing Fixtures General

22 41 06.10 Plumbing Fixture Notes

0010	PLUMBING FIXTURE NOTES, Incl. trim fittings unless otherwise noted R224000-40									
0080	For rough-in, supply, waste, and vent, see add for each type									
0122	For electric water coolers, see Section 22 47 16.10									
0160	For color, unless otherwise noted, add				EO.	20%				

22 41 13 – Residential Water Closets, Urinals, and Bidets

22 41 13.40 Water Closets

0010	WATER CLOSETS R224000-40									
0032	For automatic flush, see Line 22 42 39.10 0972									
0150	Tank type, vitreous china, incl. seat, supply pipe w/stop, 1.6 gpf or noted									
0200	Wall hung									
0400	Two piece, close coupled	Q-1	5.30	3.019	EO.	605	148		753	753
0960	For rough-in, supply, waste, vent and carrier	"	2.73	5.861	"	1,000	288		1,288	1,288
0999	Floor mounted									
1100	Two piece, close coupled	Q-1	5.30	3.019	EO.	247	148		395	395
1102	Economy		5.30	3.019		137	148		285	285
1110	Two piece, close coupled, dual flush		5.30	3.019		273	148		421	421
1140	Two piece, close coupled, 1.28 gpf, ADA G		5.30	3.019		295	148		443	443
1960	For color, add					30%				
1980	For rough-in, supply, waste and vent	Q-1	3.05	5.246	EO.	340	258		598	598

22 41 16 – Residential Lavatories and Sinks

22 41 16.10 Lavatories

0010	LAVATORIES, With trim, white unless noted otherwise R224000-40									
0500	Vanity top, porcelain enamel on cast iron									
0600	20" x 18"	Q-1	6.40	2.500	EO.	305	123		428	428
0640	33" x 19" oval		6.40	2.500		625	123		748	748
0720	19" round		6.40	2.500		228	123		351	351
0860	For color, add					25%				
1000	Cultured marble, 19" x 17", single bowl	Q-1	6.40	2.500	EO.	179	123		302	302
1040	25" x 19", single bowl	"	6.40	2.500	"	204	123		327	327
1580	For color, some price									
1900	Stainless steel, self-rimming, 25" x 22", single bowl, ledge	Q-1	6.40	2.500	EO.	360	123		483	483
1960	17" x 22", single bowl		6.40	2.500		350	123		473	473
2600	Steel, enameled, 20" x 17", single bowl		5.80	2.759		188	136		324	324
2660	19" round		5.80	2.759		164	136		300	300
2900	Vitreous china, 20" x 16", single bowl		5.40	2.963		260	146		406	406
2960	20" x 17", single bowl		5.40	2.963		176	146		322	322
3020	19" round, single bowl		5.40	2.963		174	146		320	320

41 Residential Plumbing Fixtures

116 – Residential Lavatories and Sinks

16.10 Lavatories	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
22" x 13", single bowl	Q-1	5.40	2.963	Eq.	267	146		413	515
For color, odd					50%				
Rough-in, supply, waste and vent for all above lavatories	Q-1	2.30	6.957	Eq.	420	340		760	975
Wall hung									
Porcelain enamel on cast iron, 16" x 14", single bowl	Q-1	8	2	Eq.	460	98.50		558.50	655
20" x 18", single bowl		8	2		355	98.50		453.50	545
22" x 19", single bowl	▼	8	2	▼	615	98.50		713.50	825
For color, odd					30%				
Vitreous china, 18" x 15", single bowl with backsplash	Q-1	7	2.286	Eq.	231	112		343	425
For color, odd					30%				
Rough-in, supply, waste and vent for above lavatories	Q-1	1.66	9.639	Eq.	480	475		955	1,250
Pedestal type									
Vitreous china, 27" x 21", white	Q-1	6.60	2.424	Eq.	555	119		674	795
27" x 21", colored		6.60	2.424		670	119		789	915
27" x 21", premium color		6.60	2.424		785	119		904	1,050
26" x 20", white		6.60	2.424		505	119		624	735
26" x 20", colored		6.60	2.424		600	119		719	840
26" x 20", premium color		6.60	2.424		635	119		754	880
24" x 20", white		6.60	2.424		490	119		609	715
24" x 20", colored		6.60	2.424		585	119		704	820
24" x 20", premium color		6.60	2.424		680	119		799	925
21" x 18", white		6.60	2.424		235	119		354	440
21" x 18", colored		6.60	2.424		267	119		386	475
Rough-in, supply, waste and vent for pedestal lavatories	▼	1.66	9.639	▼	480	475		955	1,250

16.30 Sinks

SINKS, With faucets and drain	R224000-40								
Kitchen, counter top style, P.E. on C.I., 24" x 21" single bowl	Q-1	5.60	2.857	Eq.	257	140		397	495
31" x 22" single bowl		5.60	2.857		525	140		665	785
32" x 21" double bowl		4.80	3.333		286	164		450	560
42" x 21" double bowl		4.80	3.333		1,050	164		1,214	1,400
Stainless steel, self rimming, 19" x 18" single bowl		5.60	2.857		580	140		720	845
25" x 22" single bowl		5.60	2.857		645	140		785	920
Steel, enameled, with ledge, 24" x 21" single bowl		5.60	2.857		440	140		580	695
32" x 21" double bowl	▼	4.80	3.333		400	164		564	685
For color sinks except stainless steel, odd					10%				
For rough-in, supply, waste and vent, counter top sinks	Q-1	2.14	7.477	▼	470	365		835	1,075
Kitchen, raised deck, P.E. on C.I.									
32" x 21", dual level, double bowl	Q-1	2.60	6.154	Eq.	345	300		645	835
For color, odd					20%				
For rough-in, supply, waste & vent, sinks	Q-1	1.85	8.649	▼	470	425		895	1,150

119 – Residential Bathtubs

19.10 Baths

BATHS									
Tubs, recessed porcelain enamel on cast iron, with trim									
48" x 42"	Q-1	4	4	Eq.	2,225	197		2,422	2,750
72" x 36"		3	5.333		2,500	262		2,762	3,150
Enameled formed steel, 4'-6" long		5.80	2.759		490	136		626	745
Soaking, acrylic with pop-up drain, 66" x 35" x 20" deep		5.50	2.909		1,800	143		1,943	2,200
60" x 48" x 18-1/2" deep		5	3.200		1,025	157		1,182	1,350
Rough-in, supply, waste and vent, for all above tubs, add	▼	2.07	7.729	▼	485	380		865	1,100

22 41 Residential Plumbing Fixtures

22 41 23 – Residential Showers

22 41 23.20 Showers		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total
0010	SHOWERS									
1500	Stall, with drain only. Add for valve and door/curtain									
3000	Fiberglass, one piece, with 3 walls, 32" x 32" square	Q-1	5.50	2.909	Eq.	545	143		688	
3100	36" x 36" square		5.50	2.909		555	143		698	
3250	64" x 65-3/4" x 81-1/2" fold. seat, whlchr.		3.80	4.211		2,050	207		2,257	
4000	Polypropylene, stall only, w/molded-stone floor, 30" x 30"		2	8		500	395		895	
4200	Rough-in, supply, waste and vent for above showers	▼	2.05	7.805	▼	590	385		975	

22 41 23.40 Shower System Components

0010	SHOWER SYSTEM COMPONENTS									
4500	Receptor only									
4510	For tile, 36" x 36"	1 Plum	4	2	Eq.	325	109		434	
4520	Fiberglass receptor only, 32" x 32"		8	1		107	54.50		161.50	
4530	34" x 34"		7.80	1.026		126	56		182	
4540	36" x 36"	▼	7.60	1.053	▼	132	57.50		189.50	
4600	Rectangular									
4620	32" x 48"	1 Plum	7.40	1.081	Eq.	149	59		208	
4630	32" x 54"		7.20	1.111		196	60.50		256.50	
4640	32" x 60"		7	1.143		208	62.50		270.50	
5000	Built-in, head, arm, 2.5 GPM valve		4	2		80	109		189	
5200	Head, arm, by-pass, integral stops, handles	▼	3.60	2.222	▼	216	121		337	

22 41 36 – Residential Laundry Trays

22 41 36.10 Laundry Sinks

0010	LAUNDRY SINKS, With trim									
0020	Porcelain enamel on cast iron, black iron frame									
0050	24" x 21", single compartment	Q-1	6	2.667	Eq.	465	131		596	
0100	26" x 21", single compartment	"	6	2.667	"	450	131		581	
2000	Molded stone, on wall hanger or legs									
2020	22" x 23", single compartment	Q-1	6	2.667	Eq.	138	131		269	
2100	45" x 21", double compartment	"	5	3.200	"	259	157		416	
3000	Plastic, on wall hanger or legs									
3020	18" x 23", single compartment	Q-1	6.50	2.462	Eq.	149	121		270	
3300	40" x 24", double compartment		5.50	2.909		267	143		410	
5000	Stainless steel, counter top, 22" x 17" single compartment		6	2.667		61.50	131		192.50	
5200	33" x 22", double compartment		5	3.200		73.50	157		230.50	
9600	Rough-in, supply, waste and vent, for all laundry sinks	▼	2.14	7.477	▼	470	365		835	

22 41 39 – Residential Faucets, Supplies and Trim

22 41 39.10 Faucets and Fittings

0010	FAUCETS AND FITTINGS									
0150	Both, faucets, diverter spout combination, sweat	1 Plum	8	1	Eq.	86.50	54.50		141	
0200	For integral stops, IPS unions, odd					109			109	
0420	Both, press-bal mix valve w/diverter, spout, shower hd, arm/flange	1 Plum	8	1	▼	163	54.50		217.50	
0810	Bidet									
0812	Fitting, over the rim, swivel spray/pop-up drain	1 Plum	8	1	Eq.	172	54.50		226.50	
1000	Kitchen sink faucets, top mount, cost spout		10	.800		61.50	43.50		105	
1100	For spray, odd	▼	24	.333	▼	16.15	18.20		34.35	
1300	Single control lever handle									
1310	With pull out spray									
1320	Polished chrome	1 Plum	10	.800	Eq.	171	43.50		214.50	
2000	Laundry faucets, shelf type, IPS or copper unions		12	.667		49.50	36.50		86	
2100	Lavatory faucet, centerset, without drain	▼	10	.800	▼	44.50	43.50		88	
2210	Porcelain cross handles and pop-up drain									

41 Residential Plumbing Fixtures

139 – Residential Faucets, Supplies and Trim

39.10 Faucets and Fittings	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Polished chrome	1 Plum	6.66	1.201	Eo.	128	65.50		193.50	240
Polished brass	"	6.66	1.201	"	193	65.50		258.50	310
Single lever handle and pop-up drain									
Satin nickel	1 Plum	6.66	1.201	Eo.	274	65.50		339.50	400
Polished chrome		6.66	1.201		182	65.50		247.50	299
Automatic sensor and operator, with faucet head	G	6.15	1.301		370	71		441	515
Shower by-pass valve with union		18	.444		68.50	24.50		93	112
Shower thermostatic mixing valve, concealed, with shower head trim kit	↓	8	1	↓	320	54.50		374.50	435
Shower pressure balancing mixing valve, With shower head, arm, flange and diverter tub spout									
Chrome	1 Plum	6.14	1.303	Eo.	222	71		293	350
Polished brass		6.14	1.303		279	71		350	410
Satin		6.14	1.303		279	71		350	410
Polished chrome/brass		6.14	1.303		229	71		300	360
Sillcock, compact, brass, IPS or copper to hose	↓	24	.333	↓	13.30	18.20		31.50	42

42 Commercial Plumbing Fixtures

213 – Commercial Water Closets, Urinals, and Bidets

13.30 Urinals

URINALS										
Wall hung, vitreous chino, with honger & self-closing volve										
Siphon jet type		Q-1	3	5.333	Eo.	293	262	555	720	
Blowout type			3	5.333		285	262	547	710	
Water saving .5 gpf		G	3	5.333		655	262	917	1,125	
Rough-in, supply, waste & vent			2.83	5.654		585	278	863	1,050	
Stall type, vitreous chino, includes volve			2.50	6.400		655	315	970	1,200	
Rough-in, supply, waste and vent			1.99	8.040		590	395	985	1,250	
Waterless (no flush) urinol										
Wall hung										
Fiberglass reinforced polyester										
Standord unit		G	Q-1	21.30	.751	Eo.	385	37	422	475
ADA compliant unit		G	"	21.30	.751		400	37	437	495
For solid color, odd		G				60		60	66	
For 2" brass flonge, (new const.), odd		G	Q-1	96	.167		19.20	8.20	27.40	33.50
Vitreous chino										
ADA compliant unit, 14"		G	Q-1	21.30	.751	Eo.	198	37	235	274
ADA compliant unit, 18"		G		21.30	.751		320	37	357	405
ADA compliant unit, 15.5"				21.30	.751		272	37	309	355
For solid color, odd		G				60		60	66	
Rough-in, supply, waste & vent		G	Q-1	2.92	5.479		530	269	799	985
Trop liquid										
1 quart		G			Eo.	15.15		15.15	16.70	
1 gallon		G			"	56		56	61.50	

13.40 Water Closets

WATER CLOSETS									
Bowl only, with flush valve, seat, 1.6 gpf unless noted									
Wall hung	Q-1	5.80	2.759	Eo.	455	136		591	705
For rough-in, supply, waste and vent, single WC		2.56	6.250		1,075	305		1,380	1,650
Floor mounted		5.80	2.759		315	136		451	555
With wall outlet		5.80	2.759		455	136		591	705
With floor outlet, 1.28 gpf	G	↓	5.80	2.759	↓	505	136	641	760

22 42 Commercial Plumbing Fixtures

22 42 13 – Commercial Water Closets, Urinals, and Bidets

22 42 13.40 Water Closets		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Unit
		Q-1	5.80	2.759	Ea.	595	Labor	Equipment	731	10
3362	With floor outlet, 1.28 gpf, ADA	G								
3400	For rough-in, supply, waste and vent, single WC		2.84	5.634		420	277		697	80

22 42 16 – Commercial Lavatories and Sinks

22 42 16.10 Handwasher-Dryer Module

0010 HANDWASHER-DRYER MODULE										
0030	Wall mounted									
0040	With electric dryer									
0050	Sensor operated	Q-1	8	2	Ea.	3,650	98.50		3,748.50	4.00
0110	Sensor operated (ADA)		8	2		3,650	98.50		3,748.50	4.00
0140	Sensor operated (ADA), surface mounted	E	8	2		4,400	98.50		4,498.50	5.00
0150	With paper towels									
0180	Sensor operated	Q-1	8	2	Ea.	3,550	98.50		3,648.50	4.00

22 42 16.14 Lavatories

0010	LAVATORIES, With trim, white unless noted otherwise									
0020	Commercial lavatories same as residential. See Section 22 41 16.10									

22 42 16.40 Service Sinks

0010 SERVICE SINKS										
6650	Service, floor, corner, P.E. on C.I., 28" x 28"	Q-1	4.40	3.636	Ea.	880	179		1,059	1.20
6790	For rough-in, supply, waste & vent, floor service sinks		1.64	9.756		1,400	480		1,880	2.20
7000	Service, wall, P.E. on C.I., roll rim, 22" x 18"		4	4		675	197		872	1.00
7100	24" x 20"		4	4		740	197		937	1.10
8600	Vitreous china, 22" x 20"		4	4		540	197		737	0.80
8960	For stainless steel rim guard, front or one side, add					55			55	
8980	For rough-in, supply, waste & vent, wall service sinks	Q-1	1.30	12.308		1,675	605		2,280	2.70

22 42 23 – Commercial Showers

22 42 23.30 Group Showers

0010 GROUP SHOWERS										
6000	Group, w/pressure balancing valve, rough-in and rigging not included									
6800	Column, 6 heads, no receptors, less partitions	Q-1	3	5.333	Ea.	3,000	262		3,262	3.70
6900	With stainless steel partitions		1	16		9,250	785		10,035	11.40
7600	5 heads, no receptors, less partitions		3	5.333		2,475	262		2,737	3.10
7620	4 heads (1 handicap) no receptors, less partitions	E	3	5.333		3,975	262		4,237	4.70
7700	With stainless steel partitions		1	16		7,600	785		8,385	9.50
8000	Wall, 2 heads, no receptors, less partitions		4	4		1,375	197		1,572	1.80
8100	With stainless steel partitions		2	8		3,225	395		3,620	4.10

22 42 33 – Wash Fountains

22 42 33.20 Commercial Wash Fountains

0010 COMMERCIAL WASH FOUNTAINS										
1900	Group, foot control									
2000	Precast terrazzo, circular, 36" diam., 5 or 6 persons	Q-2	3	8	Ea.	5,450	410		5,860	6.60
2100	54" diameter for 8 or 10 persons		2.50	9.600		6,800	490		7,290	8.20
2400	Semi-circular, 36" diam. for 3 persons		3	8		4,775	410		5,185	5.80
2500	54" diam. for 4 or 5 persons		2.50	9.600		6,050	490		6,540	7.40
2700	Quarter circle (corner), 54" for 3 persons		3.50	6.857		6,000	350		6,350	7.10
3000	Stainless steel, circular, 36" diameter		3.50	6.857		5,450	350		5,800	6.50
3100	54" diameter		2.80	8.571		7,050	435		7,485	8.40
3400	Semi-circular, 36" diameter		3.50	6.857		4,750	350		5,100	5.70
3500	54" diameter	E	2.80	8.571		6,000	435		6,435	7.20
5610	Group, infrared control, barrier free									
5614	Precast terrazzo									

42 Commercial Plumbing Fixtures

42.33 – Wash Fountains

33.20 Commercial Wash Fountains	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Semi-circular 36" diam. for 3 persons	Q-2	3	8	Ea.	7,150	410		7,560	8,500
46" diam. for 4 persons		2.80	8.571		7,725	435		8,160	9,150
Circular, 54" diam. for 8 persons, button control		2.50	9.600		9,125	490		9,615	10,700
Rough-in, supply, waste and vent for above wash fountains	Q-1	1.82	8.791		675	430		1,105	1,400
Duo for small washrooms, stainless steel		2	8		2,725	395		3,120	3,575
Rough-in, supply, waste & vent for duo fountains		2.02	7.921		400	390		790	1,025

42.39 – Commercial Faucets, Supplies, and Trim

39.10 Faucets and Fittings

FAUCETS AND FITTINGS									
Flush valves, with vacuum breaker									
Water closet									
Exposed, rear spud	1 Plum	8	1	Ea.	137	54.50		191.50	234
Top spud		8	1		126	54.50		180.50	222
Concealed, rear spud		8	1		180	54.50		234.50	281
Top spud		8	1		149	54.50		203.50	247
Wall hung		8	1		159	54.50		213.50	258
Urinal									
Exposed, stall	1 Plum	8	1	Ea.	126	54.50		180.50	222
Wall, (washout)		8	1		126	54.50		180.50	222
Pedestal, top spud		8	1		129	54.50		183.50	225
Concealed, stall		8	1		145	54.50		199.50	242
Wall (washout)		8	1		156	54.50		210.50	255
Automatic flush sensor and operator for urinals or water closets, standard	 	1 Plum	8	1	Ea.	415	54.50	469.50	545
High efficiency water saving Water closets, 1.28 gpf		1 Plum	8	1	Ea.	395	54.50	449.50	520
Urinals, .5 gpf		"	8	1	"	395	54.50	449.50	520
Faucets for lavatories									
Self-closing, center set	1 Plum	10	.800	Ea.	131	43.50		174.50	210
Automatic sensor and operator, with faucet head		6.15	1.301		370	71		441	515
Service sink faucet, cast spout, pail hook, hose end		14	.571		80	31		111	135

39.30 Carriers and Supports

CARRIERS AND SUPPORTS, For plumbing fixtures									
Drinking fountain, wall mounted									
Plate type with studs, top back plate	1 Plum	7	1.143	Ea.	76.50	62.50		139	178
Top front and back plate		7	1.143		94.50	62.50		157	198
Top & bottom, front & back plates, w/bearing jacks		7	1.143		136	62.50		198.50	243
Lavatory, concealed arm									
Floor mounted, single									
High back fixture	1 Plum	6	1.333	Ea.	425	73		498	575
Flat slab fixture		6	1.333		370	73		443	515
Paraplegic		6	1.333		475	73		548	630
Floor mounted, back to back									
High back fixtures	1 Plum	5	1.600	Ea.	605	87.50		692.50	795
Flat slab fixtures		5	1.600		745	87.50		832.50	950
Paraplegic		5	1.600		690	87.50		777.50	890
Wall mounted, in stud or masonry									
High back fixture	1 Plum	6	1.333	Ea.	251	73		324	385
Flat slab fixture	"	6	1.333	"	217	73		290	350
Sink, floor mounted									
Exposed arm system									
Single heavy fixture	1 Plum	5	1.600	Ea.	217	87.50		304.50	370

22 42 Commercial Plumbing Fixtures

22 42 39 – Commercial Faucets, Supplies, and Trim

22 42 39.30 Carriers and Supports		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total
							Labor	Equipment		Inst.
4750	Single heavy sink with slab	1 Plum	5	1.600	Ea.	910	87.50		997.50	
4800	Back to back, standard fixtures		5	1.600		520	87.50		607.50	
4850	Back to back, heavy fixtures		5	1.600		805	87.50		892.50	
4900	Back to back, heavy sink with slab		5	1.600		805	87.50		892.50	
4950	Exposed offset arm system									
5000	Single heavy deep fixture	1 Plum	5	1.600	Ea.	685	87.50		772.50	
5100	Plate type system									
5200	With bearing jacks, single fixture	1 Plum	5	1.600	Ea.	775	87.50		862.50	
5300	With exposed arms, single heavy fixture		5	1.600		995	87.50		1,082.50	
5400	Wall mounted, exposed arms, single heavy fixture		5	1.600		360	87.50		447.50	
6000	Urinal, floor mounted, 2" or 3" coupling, blowout type		6	1.333		455	73		528	
6100	With fixture or hanger balts, blowout or washout		6	1.333		320	73		393	
6200	With bearing plate		6	1.333		360	73		433	
6300	Wall mounted, plate type system		6	1.333		277	73		350	
6980	Water closet, siphon jet									
7000	Horizontal, adjustable, caulk									
7040	Single, 4" pipe size	1 Plum	5.33	1.501	Ea.	815	82		897	
7050	4" pipe size, paraplegic		5.33	1.501		815	82		897	
7060	5" pipe size		5.33	1.501		1,025	82		1,107	
7100	Double, 4" pipe size		5	1.600		1,425	87.50		1,512.50	
7110	4" pipe size, paraplegic		5	1.600		1,425	87.50		1,512.50	
7120	5" pipe size		5	1.600		1,725	87.50		1,812.50	
7160	Horizontal, adjustable, extended, caulk									
7180	Single, 4" pipe size	1 Plum	5.33	1.501	Ea.	815	82		897	
7200	5" pipe size		5.33	1.501		1,025	82		1,107	
7240	Double, 4" pipe size		5	1.600		1,425	87.50		1,512.50	
7260	5" pipe size		5	1.600		1,725	87.50		1,812.50	
7400	Vertical, adjustable, caulk or thread									
7440	Single, 4" pipe size	1 Plum	5.33	1.501	Ea.	830	82		912	
7460	5" pipe size		5.33	1.501		1,025	82		1,107	
7480	6" pipe size		5	1.600		1,175	87.50		1,262.50	
7520	Double, 4" pipe size		5	1.600		1,225	87.50		1,312.50	
7540	5" pipe size		5	1.600		1,425	87.50		1,512.50	
7560	6" pipe size		4	2		1,575	109		1,684	
7600	Vertical, adjustable, extended, caulk									
7620	Single, 4" pipe size	1 Plum	5.33	1.501	Ea.	830	82		912	
7640	5" pipe size		5.33	1.501		1,025	82		1,107	
7680	6" pipe size		5	1.600		1,175	87.50		1,262.50	
7720	Double, 4" pipe size		5	1.600		1,225	87.50		1,312.50	
7740	5" pipe size		5	1.600		1,425	87.50		1,512.50	
7760	6" pipe size		4	2		1,575	109		1,684	
7780	Water closet, blow out									
7800	Vertical offset, caulk or thread									
7820	Single, 4" pipe size	1 Plum	5.33	1.501	Ea.	630	82		712	
7840	Double, 4" pipe size	"	5	1.600	"	1,050	87.50		1,137.50	
7880	Vertical offset, extended, caulk									
7900	Single, 4" pipe size	1 Plum	5.33	1.501	Ea.	770	82		852	
7920	Double, 4" pipe size	"	5	1.600	"	1,200	87.50		1,287.50	
7960	Vertical, for floor mounted back-outlet									
7980	Single, 4" thread, 2" vent	1 Plum	5.33	1.501	Ea.	540	82		622	
8000	Double, 4" thread, 2" vent	"	6	1.333	"	1,575	73		1,648	
8040	Vertical, for floor mounted back-outlet, extended									
8060	Single, 4" caulk, 2" vent	1 Plum	6	1.333	Ea.	540	73		613	

42 Commercial Plumbing Fixtures

42.39 – Commercial Faucets, Supplies, and Trim

42.39.30 Carriers and Supports	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Double, 4" caulk, 2" vent	1 Plum	6	1.333	Ea.	1,575	73		1,648	1,850
Water closet, residential									
Vertical centerline, floor mount									
Single, 3" caulk, 2" or 3" vent	1 Plum	6	1.333	Ea.	490	73		563	650
4" caulk, 2" or 4" vent		6	1.333		630	73		703	805
3" copper sweat, 3" vent		6	1.333		440	73		513	595
4" copper sweat, 4" vent	▼	6	1.333	▼	530	73		603	695
Vertical offset, floor mount									
Single, 3" or 4" caulk, vent	1 Plum	4	2	Ea.	610	109		719	840
3" or 4" copper sweat, vent		5	1.600		630	87.50		717.50	820
Double, 3" or 4" caulk, vent		4	2		1,050	109		1,159	1,325
3" or 4" copper sweat, vent	▼	5	1.600	▼	1,050	87.50		1,137.50	1,275
Water cooler (electric), floor mounted									
Plate type with bearing plate, single	1 Plum	6	1.333	Ea.	310	73		383	450

45 Emergency Plumbing Fixtures

45.13 – Emergency Showers

45.13.10 Emergency Showers

EMERGENCY SHOWERS , Rough-in not included									
Shower, single head, drench, ball valve, pull, freestanding	Q-1	4	4	Ea.	350	197		547	680
Horizontal or vertical supply		4	4		520	197		717	865
Multi-nozzle, eye/face wash combination		4	4		615	197		812	970
Multi-nozzle, 12 spray, shower only		4	4		1,950	197		2,147	2,450
For freeze-proof, add	▼	6	2.667	▼	440	131		571	685

45.16 – Eyewash Equipment

45.16.10 Eyewash Safety Equipment

EYEWASH SAFETY EQUIPMENT , Rough-in not included									
Eye wash fountain									
Plastic bowl, pedestal mounted	Q-1	4	4	Ea.	262	197		459	585
Unmounted		4	4		227	197		424	545
Wall mounted		4	4		420	197		617	760
Stainless steel, pedestal mounted		4	4		405	197		602	740
Unmounted		4	4		262	197		459	585
Wall mounted	▼	4	4	▼	299	197		496	625

45.19 – Self-Contained Eyewash Equipment

45.19.10 Self-Contained Eyewash Safety Equipment

SELF-CONTAINED EYEWASH SAFETY EQUIPMENT									
Eye wash, portable, self-contained				Ea.	1,050			1,050	1,150

45.26 – Eye/Face Wash Equipment

45.26.10 Eye/Face Wash Safety Equipment

EYE/FACE WASH SAFETY EQUIPMENT , Rough-in not included									
Eye and face wash, combination fountain									
Stainless steel, pedestal mounted	Q-1	4	4	Ea.	895	197		1,092	1,275
Unmounted		4	4		262	197		459	585
Wall mounted	▼	4	4	▼	269	197		466	595

22 47 Drinking Fountains and Water Coolers

22 47 13 – Drinking Fountains

22 47 13.10 Drinking Water Fountains

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O
0010	DRINKING WATER FOUNTAINS , For connection to cold water supply R224000-40									
1000	Wall mounted, non-recessed									
1400	Brass, with no back	1 Plum	4	2	Eq.	975	109		1,084	
1800	Cast aluminum, enameled, for correctional institutions		4	2		1,375	109		1,484	
2000	Fiberglass, 12" back, single bubbler unit		4	2		1,450	109		1,559	
2040	Dual bubbler		3.20	2.500		1,950	137		2,087	
2400	Precast stone, no back		4	2		760	109		869	
2700	Stainless steel, single bubbler, no back		4	2		920	109		1,029	
2740	With back		4	2		635	109		744	
2780	Dual handle & wheelchair projection type		4	2		685	109		794	
2820	Dual level for handicapped type		3.20	2.500		1,400	137		1,537	
3300	Vitreous chino									
3340	7" back	1 Plum	4	2	Eq.	610	109		719	
3940	For vandal-resistant bottom plate, add					115			115	
3960	For freeze-proof valve system, add	1 Plum	2	4		610	218		828	
3980	For rough-in, supply and waste, add	"	2.21	3.620		345	198		543	
4000	Wall mounted, semi-recessed									
4200	Poly-marble, single bubbler	1 Plum	4	2	Eq.	925	109		1,034	
4600	Stainless steel, satin finish, single bubbler		4	2		995	109		1,104	
4900	Vitreous chino, single bubbler		4	2		840	109		949	
5980	For rough-in, supply and waste, add		1.83	4.372		345	239		584	
6000	Wall mounted, fully recessed									
6400	Poly-marble, single bubbler	1 Plum	4	2	Eq.	1,525	109		1,634	
6800	Stainless steel, single bubbler		4	2		1,525	109		1,634	
7560	For freeze-proof valve system, add		2	4		730	218		948	
7580	For rough-in, supply and waste, add		1.83	4.372		345	239		584	
7600	Floor mounted, pedestal type									
7700	Aluminum, architectural style, C.I. base	1 Plum	2	4	Eq.	2,200	218		2,418	
7780	Wheelchair handicap unit		2	4		1,475	218		1,693	
8400	Stainless steel, architectural style		2	4		2,650	218		2,868	
8600	Enameled iron, heavy duty service, 2 bubblers		2	4		2,500	218		2,718	
8660	4 bubblers		2	4		3,825	218		4,043	
8880	For freeze-proof valve system, add		2	4		610	218		828	
8900	For rough-in, supply and waste, add		1.83	4.372		345	239		584	
9100	Deck mounted									
9500	Stainless steel, circular receptor	1 Plum	4	2	Eq.	415	109		524	
9760	White enameled steel, 14" x 9" receptor		4	2		360	109		469	
9860	White enameled cast iron, 24" x 16" receptor		3	2.667		405	146		551	
9980	For rough-in, supply and waste, add		1.83	4.372		345	239		584	

22 47 16 – Pressure Water Coolers

22 47 16.10 Electric Water Coolers

0010	ELECTRIC WATER COOLERS	R224000-50								
0100	Wall mounted, non-recessed									
0140	4 GPH	Q-1	4	4	Eq.	680	197		877	
0160	8 GPH, barrier free, sensor operated		4	4		890	197		1,087	
0180	8.2 G.P.H.		4	4		680	197		877	
0600	8 GPH hot and cold water		4	4		1,175	197		1,372	
0640	For stainless steel cabinet, add					84			84	
1000	Dual height, 8.2 GPH	Q-1	3.80	4.211		1,975	207		2,182	
1040	14.3 GPH	"	3.80	4.211		1,125	207		1,332	
1240	For stainless steel cabinet, add					150			150	
2600	Wheelchair type, 8 GPH	Q-1	4	4		975	197		1,172	

2 47 Drinking Fountains and Water Coolers

2 47 16 - Pressure Water Coolers

22 16.10 Electric Water Coolers	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Semi-recessed, 8.1 GPH	Q-1	4	4	Eq.	630	197		827	985
12 GPH	▼	4	4	▼	725	197		922	1,100
Floor mounted, flush-to-wall									
4 GPH	1 Plum	3	2.667	Eq.	620	146		766	905
8.2 GPH		3	2.667		655	146		801	940
14.3 GPH		3	2.667		750	146		896	1,050
14 GPH hot and cold water	▼	3	2.667		1,050	146		1,196	1,375
For stainless steel cabinet, odd					128			128	141
Dual height, 8.2 GPH	1 Plum	2	4		1,100	218		1,318	1,550
14.3 GPH	"	2	4		1,150	218		1,368	1,600
For stainless steel cabinet, odd					186			186	205
For supply, waste & vent, all coolers	1 Plum	2.21	3.620	▼	345	198		543	680

2 51 Swimming Pool Plumbing Systems

2 51 19 - Swimming Pool Water Treatment Equipment

22 19.50 Swimming Pool Filtration Equipment

SWIMMING POOL FILTRATION EQUIPMENT	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Filter system, sand or diatomite type, incl. pump, 6,000 gal./hr.	2 Plum	1.80	8.889	Total	1,775	485		2,260	2,675
Add for chlorination system, 800 S.F. pool		3	5.333	Eq.	105	291		396	555
5,000 S.F. pool	▼	3	5.333	"	1,875	291		2,166	2,525

2 52 Fountain Plumbing Systems

2 52 16 - Fountain Pumps

22 52 16.10 Fountain Water Pumps

FOUNTAIN WATER PUMPS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Pump w/controls									
Single phase, 100' cord, 1/2 H.P. pump	2 Skwk	4.40	3.636	Eq.	1,225	165		1,390	1,600
3/4 H.P. pump		4.30	3.721		2,125	169		2,294	2,575
1 H.P. pump		4.20	3.810		2,300	173		2,473	2,800
1-1/2 H.P. pump		4.10	3.902		2,700	177		2,877	3,250
2 H.P. pump		4	4		3,675	182		3,857	4,325
Three phase, 200' cord, 5 H.P. pump		3.90	4.103		5,025	186		5,211	5,825
7-1/2 H.P. pump		3.80	4.211		8,725	191		8,916	9,900
10 H.P. pump		3.70	4.324		9,550	196		9,746	10,800
15 H.P. pump	▼	3.60	4.444	▼	11,500	202		11,702	13,000
DESIGN NOTE: Use two horsepower per surface acre.									

2 52 33 - Fountain Ancillary

22 52 33.10 Fountain Miscellaneous

FOUNTAIN MISCELLANEOUS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Nozzles, minimum	2 Skwk	8	2	Eq.	149	91		240	305
Maximum		8	2		320	91		411	490
Lights w/mounting kits, 200 watt		18	.889		1,050	40.50		1,090.50	1,225
300 watt		18	.889		1,275	40.50		1,315.50	1,475
500 watt		18	.889		1,425	40.50		1,465.50	1,650
Color blender	▼	12	1.333	▼	555	60.50		615.50	705

22 66 Chemical-Waste Systems for Lab. and Healthcare Facilities

22 66 53 – Laboratory Chemical-Waste and Vent Piping

22 66 53.30 Glass Pipe

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind
							Labor	Equipment		
0010	GLASS PIPE , Borosilicate, couplings & clevis hanger assemblies, 10' O.C.									
0020	Drainage									
1100	1-1/2" diameter	Q-1	52	.308	L.F.	10	15.10		25.10	
1120	2" diameter		44	.364		13.05	17.85		30.90	
1140	3" diameter		39	.410		17.65	20		37.65	
1160	4" diameter		30	.533		31.50	26		57.50	
1180	6" diameter		26	.615		58.50	30.50		89	

22 66 53.60 Corrosion Resistant Pipe

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind
							Labor	Equipment		
0010	CORROSION RESISTANT PIPE , No couplings or hangers									
0020	Iron alloy, drain, mechanical joint									
1000	1-1/2" diameter	Q-1	70	.229	L.F.	46	11.25		57.25	
1100	2" diameter		66	.242		47	11.90		58.90	
1120	3" diameter		60	.267		60.50	13.10		73.60	
1140	4" diameter		52	.308		77.50	15.10		92.60	
2980	Plastic, epoxy, fiberglass filament wound, B&S joint									
3000	2" diameter	Q-1	62	.258	L.F.	12	12.70		24.70	
3100	3" diameter		51	.314		14	15.40		29.40	
3120	4" diameter		45	.356		20	17.50		37.50	
3140	6" diameter		32	.500		28	24.50		52.50	
3980	Polyester, fiberglass filament wound, B&S joint									
4000	2" diameter	Q-1	62	.258	L.F.	13.05	12.70		25.75	
4100	3" diameter		51	.314		17	15.40		32.40	
4120	4" diameter		45	.356		25	17.50		42.50	
4140	6" diameter		32	.500		36	24.50		60.50	
4980	Polypropylene, acid resistant, fire retardant, schedule 40									
5000	1-1/2" diameter	Q-1	68	.235	L.F.	6.90	11.55		18.45	
5100	2" diameter		62	.258		9.45	12.70		22.15	
5120	3" diameter		51	.314		19.30	15.40		34.70	
5140	4" diameter		45	.356		24.50	17.50		42	
5980	Poxylene, fire retardant, Schedule 40									
6000	1-1/2" diameter	Q-1	68	.235	L.F.	10.80	11.55		22.35	
6100	2" diameter		62	.258		14.80	12.70		27.50	
6120	3" diameter		51	.314		27	15.40		42.40	
6140	4" diameter		45	.356		38	17.50		55.50	

Estimating Tips

Labor adjustment factors in Subdivision 22 01 02.20 apply to Division 23.

23 00 00 Facility Fuel Systems

Prices in this subdivision above- and below-ground storage tanks do not include foundations or hold-down slabs, as noted. The estimator should refer to Divisions 3 and 4 for foundation system pricing. In addition to the foundations, required tank accessories, such as tank gauges, leak detection devices, and additional manholes and piping, must be added to the tank prices.

23 70 00 Central Heating Equipment

When estimating the cost of an HVAC system, check to see who is responsible for providing and installing the temperature control system. It is possible to overlook controls, assuming that they would be included in the electrical estimate.

When looking up a boiler, be careful on specified capacity. Some manufacturers rate their products on output while others use input.

Include HVAC insulation for pipe, boiler, and duct (wrap and liner).

Be careful when looking up mechanical items to get the correct pressure rating and connection type (thread, weld, flange).

23 70 00 Central HVAC Equipment

- Combination heating and cooling units are sized by the air conditioning requirements. (See Reference No. R236000-20 for preliminary sizing guide.)
- A ton of air conditioning is nominally 400 CFM.
- Rectangular duct is taken off by the linear foot for each size, but its cost is usually estimated by the pound. Remember that SMACNA standards now base duct on internal pressure.
- Prefabricated duct is estimated and purchased like pipe: straight sections and fittings.
- Note that cranes or other lifting equipment are not included on any lines in Division 23. For example, if a crane is required to lift a heavy piece of pipe into place high above a gym floor, or to put a rooftop unit on the roof of a four-story building, etc., it must be added. Due to the potential for extreme variation—from nothing additional required to a major crane or helicopter—we feel that including a nominal amount for "lifting contingency" would be useless and detract from the accuracy of the estimate. When using equipment rental cost data from RSMeans, do not forget to include the cost of the operator(s).

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

Note: Trade Service, in part, has been used as a reference source for some of the material prices used in Division 23.

23 05 Common Work Results for HVAC

23 05 02 – HVAC General

23 05 02.10 Air Conditioning, General

0010 **AIR CONDITIONING, GENERAL** Prices are for standard efficiencies (SEER 13)

0020 for upgrade to SEER 14 add

Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	
					Labor	Equipment		
					20%			

23 05 05 – Selective HVAC Demolition

23 05 05.10 HVAC Demolition

0010 HVAC DEMOLITION

0100 Air conditioner, split unit, 3 ton

Q-5 2 8 Ea. 400 400

0150 Package unit, 3 ton

Q-6 3 8 " 415 415

0298 Bilers

0300 Electric, up thru 148 kW

Q-19 2 12 Ea. 605 605

0310 150 thru 518 kW

" 1 24 1,225 1,225

0320 550 thru 2000 kW

Q-21 .40 80 4,150 4,150

0330 2070 kW and up

" .30 106 5,525 5,525

0340 Gas and/or oil, up thru 150 MBH

Q-7 2.20 14.545 770 770

0350 160 thru 2000 MBH

.80 40 2,125 2,125

0360 2100 thru 4500 MBH

.50 64 3,400 3,400

0370 4600 thru 7000 MBH

.30 106 5,650 5,650

0380 7100 thru 12,000 MBH

.16 200 10,600 10,600

0390 12,200 thru 25,000 MBH

▼ .12 266 ▼ 14,100 14,100

1000 Ductwork, 4" high, 8" wide

1 Clab 200 .040 L.F. 1.40 1.40

1100 6" high, 8" wide

165 .048 1.70 1.70

1200 10" high, 12" wide

125 .064 2.25 2.25

1300 12"-14" high, 16"-18" wide

85 .094 3.30 3.30

1400 18" high, 24" wide

67 .119 4.19 4.19

1500 30" high, 36" wide

56 .143 5 5

1540 72" wide

▼ 50 .160 ▼ 5.60 5.60

3000 Mechanical equipment, light items. Unit is weight, not cooling.

Q-5 .90 17.778 Tan 890 890

3600 Heavy items

" 1.10 14.545 " 730 730

3700 Deduct for salvage (when applicable), minimum

Job 73 73

3710 Maximum

" 455 455

23 05 23 – General-Duty Valves for HVAC Piping

23 05 23.30 Valves, Iron Body

0010 VALVES, IRON BODY

1020 Butterfly, wafer type, gear actuator, 200 lb.

1 Plum 14 .571 Ea. 172 31 203

1030 2"

Q-1 9 1.778 178 87.50 265.50

1040 2-1/2"

8 2 184 98.50 282.50

1050 3"

▼ 5 3.200 209 157 366

1060 4"

Q-2 5 4.800 278 245 523

1070 5"

" 5 4.800 ▼ 315 245 560

1080 6"

1650 Gate, 125 lb., N.R.S.

2150 Flanged

1 Plum 5 1.600 Ea. 610 87.50 697.50

2200 2"

Q-1 5 3.200 625 157 782

2240 2-1/2"

4.50 3.556 700 175 875

2260 3"

▼ 3 5.333 1,000 262 1,262

2280 4"

Q-2 3 8 ▼ 1,700 410 2,110

2300 6"

3550 OS&Y, 125 lb., flanged

1 Plum 5 1.600 Ea. 315 87.50 402.50

3600 2"

Q-1 4.50 3.556 445 175 620

3660 3"

" 3 5.333 635 262 897

3680 4"

Q-2 3 8 ▼ 1,050 410 1,460

3700 6"

3900 For 175 lb., flanged, add

200% 10%

05 Common Work Results for HVAC

5 23 – General-Duty Valves for HVAC Piping

23.30 Valves, Iron Body	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
						Labor	Equipment		
Swing check, 125 lb., threaded									
1"	1 Plum	13	.615	Eq.	575	33.50		608.50	685
2"	"	11	.727		780	39.50		819.50	915
2-1/2"	Q-1	15	1.067		675	52.50		727.50	825
3"		13	1.231		750	60.50		810.50	915
4"	▼	10	1.600	▼	1,300	78.50		1,378.50	1,550
Flanged									
2"	1 Plum	5	1.600	Eq.	335	87.50		422.50	500
2-1/2"	Q-1	5	3.200		340	157		497	605
3"		4.50	3.556		345	175		520	640
4"	▼	3	5.333		540	262		802	985
6"	Q-2	3	8	▼	920	410		1,330	1,625

23.80 Valves, Steel

Cast									
Check valve, swing type, 150 lb., flanged									
1"	1 Plum	10	.800	Eq.	390	43.50		433.50	495
2"	"	8	1		660	54.50		714.50	810
2-1/2"	Q-1	5	3.200		765	157		922	1,075
3"		4.50	3.556		780	175		955	1,125
4"	▼	3	5.333		1,125	262		1,387	1,625
For 300 lb., flanged, add						50%	15%		
For 600 lb., flanged, add						110%	20%		
Gate valve, 150 lb., flanged									
2"	1 Plum	8	1	Eq.	710	54.50		764.50	865
2-1/2"	Q-1	5	3.200		1,000	157		1,157	1,325
3"		4.50	3.556		1,000	175		1,175	1,375
4"	▼	3	5.333		1,250	262		1,512	1,775
6"	Q-2	3	8	▼	1,850	410		2,260	2,650
Globe valve, 150 lb., flanged									
2"	1 Plum	8	1	Eq.	890	54.50		944.50	1,075
2-1/2"	Q-1	5	3.200		1,125	157		1,282	1,475
3"		4.50	3.556		1,125	175		1,300	1,525
4"	▼	3	5.333		1,650	262		1,912	2,225
6"	Q-2	3	8	▼	2,600	410		3,010	3,475
Forged									
Check valve, class 800, horizontal, socket									
Threaded									
1/4"	1 Plum	24	.333	Eq.	94.50	18.20		112.70	132
3/8"		24	.333		94.50	18.20		112.70	132
1/2"		24	.333		94.50	18.20		112.70	132
3/4"		20	.400		101	22		123	144
1"		19	.421		119	23		142	166
1-1/4"	▼	15	.533	▼	233	29		262	300

5 93 – Testing, Adjusting, and Balancing for HVAC

93.10 Balancing, Air

BALANCING, AIR (Subcontractor's quote incl. material and labor)									
Heating and ventilating equipment									
Centrifugal fans, utility sets				Eq.				340	375
Heating and ventilating unit								515	565
In-line fan								515	565
Propeller and wall fan								97	107

23 05 Common Work Results for HVAC

23 05 93 - Testing, Adjusting, and Balancing for HVAC

23 05 93.10 Balancing, Air		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	T Ind
							Labor	Equipment		
1400	Roof exhaust fan				Ea.				230	
2000	Air conditioning equipment, central station								745	
2100	Built-up low pressure unit								685	
2200	Built-up high pressure unit								800	
2500	Multi-zone A.C. and heating unit								515	
2600	For each zone over one, add								114	
2700	Package A.C. unit								286	
2800	Roof-top heating and cooling unit								400	
3000	Supply, return, exhaust, registers & diffusers, avg. height ceiling								68	
3100	High ceiling								103	
3200	Floor height								57	

23 05 93.20 Balancing, Water

23 05 93.20 Balancing, Water		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	T Ind
							Labor	Equipment		
0010	BALANCING, WATER (Subcontractor's quote incl. material and labor)									
0050	Air cooled condenser				Ea.				215	
0080	Bailer								430	
0100	Cabinet unit heater								73.50	
0200	Chiller								520	
0300	Convactor								61	
0500	Cooling tower								400	
0600	Fan coil unit, unit ventilator								110	
0700	Fin tube and radiant panels								122	
0800	Main and duct re-heat coils								113	
0810	Heat exchanger								113	
1000	Pumps								269	
1100	Unit heater								85.50	

23 07 HVAC Insulation

23 07 13 - Duct Insulation

23 07 13.10 Duct Thermal Insulation

23 07 13.10 Duct Thermal Insulation		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	T Ind
							Labor	Equipment		
0010	DUCT THERMAL INSULATION									
0100	Rule of thumb, as a percentage of total mechanical costs				Job				10%	
0110	Insulation req'd is based on the surface size/area to be covered									
3000	Ductwork									
3020	Blanket type, fiberglass, flexible									
3140	FSK vapor barrier wrap, .75 lb. density									
3160	1" thick	G	Q-14	350	.046	S.F.	.18	2.01	2.19	
3170	1-1/2" thick	G		320	.050		.21	2.20	2.41	
3180	2" thick	G		300	.053		.26	2.35	2.61	
3190	3" thick	G		260	.062		.37	2.71	3.08	
3200	4" thick	G		242	.066		.60	2.91	3.51	
3210	Vinyl jacket, same as FSK									
3280	Unfaced, 1 lb. density									
3310	1" thick	G	Q-14	360	.044	S.F.	.19	1.95	2.14	
3320	1-1/2" thick	G		330	.048		.23	2.13	2.36	
3330	2" thick	G		310	.052		.31	2.27	2.58	
3400	FSK facing, 1 lb. density									
3420	1-1/2" thick	G	Q-14	310	.052	S.F.	.28	2.27	2.55	
3430	2" thick	G	"	300	.053	"	.33	2.35	2.68	
3450	FSK facing, 1.5 lb. density									
3470	1-1/2" thick	G	Q-14	300	.053	S.F.	.37	2.35	2.72	
3480	2" thick	G	"	290	.055	"	.48	2.43	2.91	

07 HVAC Insulation

7 13 – Duct Insulation

13.10 Duct Thermal Insulation		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
Finishes							Labor	Equipment		
	Stainless steel woven mesh	Q-14	100	.160	S.F.	.70	7.05		7.75	11.70
	For .010" stainless steel, add		160	.100		2.79	4.40		7.19	9.90
	18 oz. fiberglass cloth, pasted on		170	.094		.67	4.14		4.81	7.20
	8 oz. canvas, pasted on		180	.089		.19	3.91		4.10	6.30
	For .016" aluminum jacket, add		200	.080		.94	3.52		4.46	6.55
	Contact cement, quart can				Ea.	10.50			10.50	11.55

7 16 – HVAC Equipment Insulation

16.10 HVAC Equipment Thermal Insulation

HVAC EQUIPMENT THERMAL INSULATION					Job				10%	
Rule of thumb, as a percentage of total mechanical costs										
Insulation req'd is based on the surface size/area to be covered										
Boiler, 1-1/2" calcium silicate only	G	Q-14	110	.145	S.F.	3.50	6.40		9.90	13.80
Plus 2" fiberglass	G	"	80	.200	"	4.47	8.80		13.27	18.60
Breeching, 2" calcium silicate										
Rectangular	G	Q-14	42	.381	S.F.	6.85	16.75		23.60	33.50
Round	G	"	38.70	.413	"	7.15	18.20		25.35	36.50

09 Instrumentation and Control for HVAC

9 33 – Electric and Electronic Control System for HVAC

33.10 Electronic Control Systems

ELECTRONIC CONTROL SYSTEMS										
For electronic costs, add to Section 23 09 43.10					Ea.					15%

9 43 – Pneumatic Control System for HVAC

43.10 Pneumatic Control Systems

PNEUMATIC CONTROL SYSTEMS										
Including a nominal 50 ft. of tubing. Add control panelboard if req'd.										
Heating and ventilating, split system										
Mixed air control, economizer cycle, panel readout, tubing										
Up to 10 tons	G	Q-19	.68	35.294	Ea.	3,800	1,775		5,575	6,875
For 10 to 20 tons	G		.63	37.915		4,075	1,925		6,000	7,350
For over 20 tons	G		.58	41.096		4,425	2,075		6,500	7,975
Heating coil, hot water, 3 way valve,										
Freezestat, limit control on discharge, readout		Q-5	.69	23.088	Ea.	2,825	1,150		3,975	4,850
Cooling coil, chilled water, room										
Thermostat, 3 way valve		Q-5	2	8	Ea.	1,250	400		1,650	1,975
Cooling tower, fan cycle, damper control,										
Control system including water readout in/out at panel		Q-19	.67	35.821	Ea.	5,000	1,825		6,825	8,225
Unit ventilator, day/night operation,										
freezestat, ASHRAE, cycle 2		Q-19	.91	26.374	Ea.	2,775	1,325		4,100	5,050
Compensated hot water from boiler, valve control,										
readout and reset at panel, up to 60 GPM		Q-19	.55	43.956	Ea.	5,175	2,225		7,400	9,050
For 120 GPM			.51	47.059		5,550	2,375		7,925	9,675
For 240 GPM			.49	49.180		5,800	2,500		8,300	10,200
Boiler room combustion air, damper to 5 S.F., controls			1.37	17.582		2,500	890		3,390	4,100
Fan coil, heating and cooling valves, 4 pipe control system			3	8		1,125	405		1,530	1,850
Heat exchanger system controls			.86	27.907		2,425	1,400		3,825	4,800
Pneumatic thermostat, including controlling room radiator valve		Q-5	2.43	6.593		755	330		1,085	1,325
Pump control system		Q-19	3	8		1,150	405		1,555	1,875
Air supply for pneumatic control system										

23 09 Instrumentation and Control for HVAC

23 09 43 – Pneumatic Control System for HVAC

23 09 43.10 Pneumatic Control Systems		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Tot
							Labor	Equipment		
4600	Tank mounted duplex compressor, starter, alternator,									
4620	piping, dryer, PRV station and filter									
4630	1/2 HP	Q-19	.68	35.139	Ea.	9,300	1,775		11,075	1
4660	1-1/2 HP		.58	41.739		11,400	2,100		13,500	1
4690	5 HP	▼	.42	57.143	▼	27,000	2,900		29,900	3

23 13 Facility Fuel-Storage Tanks

23 13 13 – Facility Underground Fuel-Oil, Storage Tanks

23 13 13.09 Single-Wall Steel Fuel-Oil Tanks

0010	SINGLE-WALL STEEL FUEL-OIL TANKS									
5000	Tanks, steel ugend, sti-p3, nat incl hold-down bars									
5500	Excavation, pad, pumps and piping not included									
5510	Single wall, 500 gallon capacity, 7 gauge shell	Q-5	2.70	5.926	Ea.	2,050	297		2,347	
5520	1,000 gallon capacity, 7 gauge shell	"	2.50	6.400		3,475	320		3,795	
5530	2,000 gallon capacity, 1/4" thick shell	Q-7	4.60	6.957		5,625	370		5,995	
5535	2,500 gallon capacity, 7 gauge shell	Q-5	3	5.333		6,225	267		6,492	
5540	5,000 gallon capacity, 1/4" thick shell	Q-7	3.20	10		10,500	530		11,030	1
5580	15,000 gallon capacity, 5/16" thick shell		1.70	18.824		18,100	1,000		19,100	2
5600	20,000 gallon capacity, 5/16" thick shell		1.50	21.333		33,000	1,125		34,125	3
5610	25,000 gallon capacity, 3/8" thick shell		1.30	24.615		32,300	1,300		33,600	3
5620	30,000 gallon capacity, 3/8" thick shell		1.10	29.091		34,900	1,550		36,450	4
5630	40,000 gallon capacity, 3/8" thick shell		.90	35.556		35,600	1,875		37,475	4
5640	50,000 gallon capacity, 3/8" thick shell	▼	.80	40	▼	39,500	2,125		41,625	4

23 13 13.23 Glass-Fiber-Reinforced-Plastic, Fuel-Oil, Storage

0010	GLASS-FIBER-REINFORCED-PLASTIC, UNDERGRND FUEL-OIL, STORAGE									
0210	Fiberglass, underground, single wall, U.L. listed, not including									
0220	manway or hold-down strap									
0240	2,000 gallon capacity	Q-7	4.57	7.002	Ea.	6,700	370		7,070	
0250	4,000 gallon capacity		3.55	9.014		9,525	480		10,005	1
0260	6,000 gallon capacity		2.67	11.985		10,600	635		11,235	1
0280	10,000 gallon capacity		2	16		14,200	850		15,050	1
0284	15,000 gallon capacity		1.68	19.048		26,300	1,000		27,300	3
0290	20,000 gallon capacity	▼	1.45	22.069		28,900	1,175		30,075	3
0500	For manway, fittings and hold-downs, add									
1020	Fiberglass, underground, double wall, U.L. listed									
1030	includes manways, not incl. hold-down straps									
1040	600 gallon capacity	Q-5	2.42	6.612	Ea.	7,875	330		8,205	
1050	1,000 gallon capacity	"	2.25	7.111		10,600	355		10,955	
1060	2,500 gallon capacity	Q-7	4.16	7.692		15,100	410		15,510	1
1070	3,000 gallon capacity		3.90	8.205		16,400	435		16,835	1
1080	4,000 gallon capacity		3.64	8.791		16,500	465		16,965	1
1090	6,000 gallon capacity		2.42	13.223		21,800	700		22,500	2
1100	8,000 gallon capacity		2.08	15.385		24,700	815		25,515	2
1110	10,000 gallon capacity		1.82	17.582		27,000	935		27,935	3
1120	12,000 gallon capacity	▼	1.70	18.824	▼	33,100	1,000		34,100	3
2210	Fiberglass, underground, single wall, U.L. listed, including									
2220	hold-down straps, no manways									
2240	2,000 gallon capacity	Q-7	3.55	9.014	Ea.	7,100	480		7,580	
2250	4,000 gallon capacity		2.90	11.034		9,925	585		10,510	1
2260	6,000 gallon capacity		2	16		11,400	850		12,250	1
2280	10,000 gallon capacity	▼	1.60	20	▼	15,000	1,050		16,050	1

13 Facility Fuel-Storage Tanks

13.13 – Facility Underground Fuel-Oil, Storage Tanks

13.23 Glass-Fiber-Reinforced-Plastic, Fuel-Oil, Storage		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
	15,000 gallon capacity	Q-7	1.39	23.022	Eq.	27,100	1,225		28,325	31,800
	20,000 gallon capacity	↓	1.14	28.070	↓	30,100	1,500		31,600	35,400
Fiberglass, underground, double wall, U.L. listed includes manways and hold-down straps										
	600 gallon capacity	Q-5	1.86	8.602	Eq.	8,275	430		8,705	9,750
	1,000 gallon capacity	"	1.70	9.412		11,000	470		11,470	12,800
	2,500 gallon capacity	Q-7	3.29	9.726		15,500	515		16,015	17,900
	3,000 gallon capacity		3.13	10.224		16,800	540		17,340	19,300
	4,000 gallon capacity		2.93	10.922		16,900	580		17,480	19,500
	6,000 gallon capacity		1.86	17.204		22,600	915		23,515	26,200
	8,000 gallon capacity		1.65	19.394		25,500	1,025		26,525	29,700
	10,000 gallon capacity		1.48	21.622		27,800	1,150		28,950	32,300
	12,000 gallon capacity	↓	1.40	22.857	↓	33,900	1,200		35,100	39,100

13.23 – Facility Aboveground Fuel-Oil, Storage Tanks

13.23.13 Vertical, Steel, Aboveground Fuel-Oil, Stor. Tanks

VERTICAL, STEEL, ABOVEGROUND FUEL-OIL, STORAGE TANKS										
Fixed roof oil storage tanks, steel, (1 BBL=42 gal. w/foundation 3'D x 1'W)					Eq.					
	5,000 barrels								194,000	213,500
	24,000 barrels								333,500	367,000
	56,000 barrels								729,000	802,000
	110,000 barrels								1,060,000	1,166,000
	143,000 barrels								1,250,000	1,375,000
	225,000 barrels								1,360,000	1,496,000
Floating roof gasoline tanks, steel, 5,000 barrels (w/foundation 3'D x 1'W)									204,000	225,000
	25,000 barrels								381,000	419,000
	55,000 barrels								839,000	923,000
	100,000 barrels								1,253,000	1,379,000
	150,000 barrels								1,532,000	1,685,000
	225,000 barrels				↓				2,300,000	2,783,000

13.23.16 Horizontal, Steel, Aboveground Fuel-Oil, Storage Tanks

HORIZONTAL, STEEL, ABOVEGROUND FUEL-OIL, STORAGE TANKS										
Steel, storage, above ground, including cradles, coating, fittings, not including foundation, pumps or piping										
Single wall, 275 gallon		Q-5	5	3.200	Eq.	445	160		605	730
	550 gallon	"	2.70	5.926		3,100	297		3,397	3,850
	1,000 gallon	Q-7	5	6.400		5,075	340		5,415	6,100
	1,500 gallon		4.75	6.737		7,250	355		7,605	8,525
	2,000 gallon		4.60	6.957		8,800	370		9,170	10,200
	5,000 gallon		3.20	10		19,100	530		19,630	21,800
	10,000 gallon		2	16		29,000	850		29,850	33,200
	15,000 gallon		1.70	18.824		37,300	1,000		38,300	42,500
	20,000 gallon		1.45	22.069		48,200	1,175		49,375	55,000
	25,000 gallon		1.30	24.615		56,500	1,300		57,800	64,000
	30,000 gallon	↓	1.10	29.091	↓	67,500	1,550		69,050	76,500
Double wall, 500 gallon capacity		Q-5	2.40	6.667		2,375	335		2,710	3,125
	2000 gallon capacity	Q-7	4.15	7.711		9,075	410		9,485	10,600
	4000 gallon capacity		3.60	8.889		16,200	470		16,670	18,500
	6000 gallon capacity		2.40	13.333		19,100	705		19,805	22,100
	8000 gallon capacity		2	16		24,500	850		25,350	28,300
	10000 gallon capacity		1.80	17.778		27,500	945		28,445	31,600
	15000 gallon capacity		1.50	21.333		41,700	1,125		42,825	47,600
	20000 gallon capacity	↓	1.30	24.615	↓	47,500	1,300		48,800	54,500

23 13 Facility Fuel-Storage Tanks

23 13 23 – Facility Aboveground Fuel-Oil, Storage Tanks

23 13 23.16 Horizontal, Stl, Abvgd Fuel-Oil, Storage Tanks		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
3400	25000 gallon capacity	Q-7	1.15	27.826	Ea.	57,500	1,475		58,975
3410	30000 gallon capacity	↓	1	32	↓	63,500	1,700		65,200

23 21 Hydronic Piping and Pumps

23 21 20 – Hydronic HVAC Piping Specialties

23 21 20.10 Air Control

0010	AIR CONTROL								
0030	Air separator, with strainer								
0040	2" diameter	Q-5	6	2.667	Ea.	905	134		1,039
0080	2-1/2" diameter	↓	5	3.200		1,025	160		1,185
0100	3" diameter		4	4		1,550	201		1,751
0120	4" diameter	↓	3	5.333		2,250	267		2,517
0130	5" diameter	Q-6	3.60	6.667		2,875	345		3,220
0140	6" diameter	"	3.40	7.059	↓	3,450	365		3,815

23 21 20.18 Automatic Air Vent

0010	AUTOMATIC AIR VENT								
0020	Cast iron body, stainless steel internals, float type								
0060	1/2" NPT inlet, 300 psi	1 Stpi	12	.667	Ea.	93.50	37		130.50
0220	3/4" NPT inlet, 250 psi	"	10	.800		299	44.50		343.50
0340	1-1/2" NPT inlet, 250 psi	Q-5	12	1.333	↓	925	67		992

23 21 20.42 Expansion Joints

0010	EXPANSION JOINTS								
0100	Bellows type, neoprene cover, flanged spool								
0140	6" face to face, 1-1/4" diameter	1 Stpi	11	.727	Ea.	255	40.50		295.50
0160	1-1/2" diameter	"	10.60	.755		255	42		297
0180	2" diameter	Q-5	13.30	1.203		258	60.50		318.50
0190	2-1/2" diameter		12.40	1.290		267	64.50		331.50
0200	3" diameter		11.40	1.404		299	70.50		369.50
0480	10" face to face, 2" diameter		13	1.231		370	61.50		431.50
0500	2-1/2" diameter		12	1.333		390	67		457
0520	3" diameter		11	1.455		400	73		473
0540	4" diameter		8	2		455	100		555
0560	5" diameter		7	2.286		540	115		655
0580	6" diameter	↓	6	2.667	↓	560	134		694

23 21 20.46 Expansion Tanks

0010	EXPANSION TANKS								
1507	Underground fuel-oil storage tanks, see Section 23 13 13								
1512	Tank leak detection systems, see Section 28 33 33.50								
2000	Steel, liquid expansion, ASME, painted, 15 gallon capacity	Q-5	17	.941	Ea.	595	47		642
2020	24 gallon capacity		14	1.143		635	57.50		692.50
2040	30 gallon capacity		12	1.333		665	67		732
2060	40 gallon capacity		10	1.600		780	80		860
2080	60 gallon capacity		8	2		935	100		1,035
2100	80 gallon capacity		7	2.286		1,000	115		1,115
2120	100 gallon capacity		6	2.667		1,350	134		1,484
3000	Steel ASME expansion, rubber diaphragm, 19 gal. cap. accept.		12	1.333		2,450	67		2,517
3020	31 gallon capacity		8	2		2,600	100		2,700
3040	61 gallon capacity		6	2.667		3,650	134		3,784
3080	119 gallon capacity		4	4		3,925	201		4,126
3100	158 gallon capacity	↓	3.80	4.211	↓	5,475	211		5,686

21 Hydronic Piping and Pumps

20 - Hydronic HVAC Piping Specialties

20.46 Expansion Tanks		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
317	gallon capacity	Q-5	2.80	5.714	Ea.	8,250	286		8,536	9,500
528	gallon capacity	▼	2.40	6.667	▼	13,400	335		13,735	15,200

20.58 Hydronic Heating Control Valves

HYDRONIC HEATING CONTROL VALVES										
Radiator supply, 1/2" diameter	1 Stpi	24	.333	Ea.	59.50	18.55			78.05	93
3/4" diameter		20	.400		62.50	22.50			85	102
1" diameter		19	.421		77.50	23.50			101	121
1-1/4" diameter	▼	15	.533	▼	111	29.50			140.50	167
For low pressure steam, add					25%					

20.70 Steam Traps

STEAM TRAPS										
Cast iron body, threaded										
Inverted bucket										
1/2" pipe size	1 Stpi	12	.667	Ea.	136	37			173	205
3/4" pipe size		10	.800		236	44.50			280.50	325
1" pipe size		9	.889		365	49.50			414.50	475
1-1/4" pipe size	▼	8	1	▼	550	55.50			605.50	690
Float & thermostatic, 15 psi										
3/4" pipe size	1 Stpi	16	.500	Ea.	109	28			137	162
1" pipe size		15	.533		131	29.50			160.50	189
1-1/2" pipe size		9	.889		231	49.50			280.50	330
2" pipe size	▼	6	1.333	▼	425	74.50			499.50	580

20.76 Strainers, Y Type, Bronze Body

STRAINERS, Y TYPE, BRONZE BODY										
Screwed, 125 lb., 1/4" pipe size	1 Stpi	24	.333	Ea.	22	18.55			40.55	52
3/8" pipe size		24	.333		29	18.55			47.55	59.50
1/2" pipe size		20	.400		29	22.50			51.50	65
1" pipe size		17	.471		38.50	26			64.50	81.50
1-1/2" pipe size		14	.571		83	32			115	140
2" pipe size		13	.615		110	34.50			144.50	173
3" pipe size	▼	12	.667		835	37			872	975
300 lb., 2-1/2" pipe size	Q-5	17	.941		485	47			532	605
3" pipe size		16	1		960	50			1,010	1,125
4" pipe size	▼	15	1.067	▼	2,200	53.50			2,253.50	2,475
For 300 lb. rating 1/4" thru 2", add					15%					
Flanged, 150 lb., 1-1/2" pipe size	1 Stpi	11	.727	Ea.	450	40.50			490.50	555
2" pipe size	"	8	1		610	55.50			665.50	755
2-1/2" pipe size	Q-5	5	3.200		905	160			1,065	1,225
3" pipe size		4.50	3.556		1,125	178			1,303	1,500
4" pipe size	▼	3	5.333		1,700	267			1,967	2,250
6" pipe size	Q-6	3	8		3,225	415			3,640	4,175
8" pipe size	"	2.60	9.231	▼	3,550	480			4,030	4,625
For 300 lb. rating, add					40%					

20.78 Strainers, Y Type, Iron Body

STRAINERS, Y TYPE, IRON BODY										
Screwed, 250 lb., 1/4" pipe size	1 Stpi	20	.400	Ea.	10.55	22.50			33.05	45
3/8" pipe size		20	.400		10.55	22.50			33.05	45
1/2" pipe size		20	.400		10.55	22.50			33.05	45
1" pipe size		16	.500		17.30	28			45.30	61
1-1/2" pipe size		12	.667		28.50	37			65.50	87
2" pipe size	▼	8	1		42.50	55.50			98	131
3" pipe size	Q-5	11	1.455	▼	275	73			348	415

23 21 Hydronic Piping and Pumps

23 21 20 - Hydronic HVAC Piping Specialties

23 21 20.78 Strainers, Y Type, Iron Body

		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
0240	4" pipe size	Q-5	5	3.200	Eq.	465	160		625
0500	For galvanized body, add					50%			
1000	Flanged, 125 lb., 1-1/2" pipe size	1 Stpi	11	.727	Eq.	147	40.50		187.50
1020	2" pipe size	"	8	1		108	55.50		163.50
1040	3" pipe size	Q-5	4.50	3.556		143	178		321
1060	4" pipe size	"	3	5.333		260	267		527
1080	5" pipe size	Q-6	3.40	7.059		405	365		770
1100	6" pipe size	"	3	8		495	415		910
1500	For 250 lb. rating, add					20%			
2000	For galvanized body, add					50%			
2500	For steel body, add					40%			

23 21 20.88 Venturi Flow

	VENTURI FLOW, Measuring device								
0010	1/2" diameter	1 Stpi	24	.333	Eq.	281	18.55		299.55
0050	1" diameter		19	.421		276	23.50		299.50
0120	1-1/4" diameter		15	.533		340	29.50		369.50
0140	1-1/2" diameter		13	.615		355	34.50		389.50
0180	2" diameter		11	.727		365	40.50		405.50
0220	3" diameter	Q-5	14	1.143		515	57.50		572.50
0240	4" diameter	"	11	1.455		775	73		848
0280	6" diameter	Q-6	3.50	6.857		1,125	355		1,480
0500	For meter, add					2,125			2,125

23 21 23 - Hydronic Pumps

23 21 23.13 In-Line Centrifugal Hydronic Pumps

	IN-LINE CENTRIFUGAL HYDRONIC PUMPS								
0010	Bronze, sweat connections, 1/40 HP, in line								
0600	3/4" size	Q-1	16	1	Eq.	206	49		255
1000	Flange connection, 3/4" to 1-1/2" size								
1040	1/12 HP	Q-1	6	2.667	Eq.	530	131		661
1060	1/8 HP		6	2.667		915	131		1,046
1100	1/3 HP		6	2.667		1,025	131		1,156
1140	2" size, 1/6 HP		5	3.200		1,325	157		1,482
1180	2-1/2" size, 1/4 HP		5	3.200		1,675	157		1,832
2000	Cast iron, flange connection								
2040	3/4" to 1-1/2" size, in line, 1/12 HP	Q-1	6	2.667	Eq.	345	131		476
2100	1/3 HP		6	2.667		640	131		771
2140	2" size, 1/6 HP		5	3.200		700	157		857
2180	2-1/2" size, 1/4 HP		5	3.200		905	157		1,062
2220	3" size, 1/4 HP		4	4		920	197		1,117
2600	For non-ferrous impeller, add					3%			

23 21 29 - Automatic Condensate Pump Units

23 21 29.10 Condensate Removal Pump System

	CONDENSATE REMOVAL PUMP SYSTEM								
0010	Pump with 1 gal. ABS tank	G							
0020	115 V	G							
0100	1/50 HP, 200 GPH	G	1 Stpi	12	.667	Eq.	185	37	222
0140	1/18 HP, 270 GPH	G		10	.800		205	44.50	249.50
0160	1/5 HP, 450 GPH	G		8	1		445	55.50	500.50
0200	230 V	G							
0240	1/18 HP, 270 GPH	G	1 Stpi	10	.800	Eq.	192	44.50	236.50
0260	1/5 HP, 450 GPH	G	"	8	1	"	485	55.50	540.50

22 Steam and Condensate Piping and Pumps

22.13 – Steam and Condensate Heating Piping

22.13.23 Aboveground Steam and Condensate Piping		Daily Crew	Labor Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
ABOVEGROUND STEAM AND CONDENSATE HEATING PIPING							Labor	Equipment		
Condensate meter										
500 lb. per hour		1 Stpi	14	.571	Ea.	2,350	32		2,382	2,650
1500 lb. per hour		"	7	1.143	"	2,550	63.50		2,613.50	2,900

22.23 – Steam Condensate Pumps

22.23.10 Condensate Return System

CONDENSATE RETURN SYSTEM										
Simplex										
With pump, motor, CI receiver, float switch										
3/4 HP, 15 GPM		Q-1	1.80	8.889	Ea.	5,825	435		6,260	7,050
Duplex										
With 2 pumps and motors, CI receiver, float switch, alternator										
3/4 HP, 15 GPM, 15 gal. CI rcvr		Q-1	1.40	11.429	Ea.	6,350	560		6,910	7,825
1 HP, 25 GPM			1.20	13.333		7,625	655		8,280	9,375
1-1/2 HP, 45 GPM			1	16		8,850	785		9,635	10,900
1-1/2 HP, 60 GPM			1	16		9,925	785		10,710	12,100

23 HVAC Ducts and Casings

23.13 – Metal Ducts

23.13.13 Rectangular Metal Ducts

RECTANGULAR METAL DUCTS		R233100-20								
Fabricated rectangular, includes fittings, joints, supports, allowance for flexible connections, no insulation										
NOTE: Fabrication and installation are combined										
as LABOR cast. Approx. 25% fittings assumed.										
Add to labor for elevated installation										
of fabricated ductwork										
10' to 15' high								6%		
15' to 20' high								12%		
20' to 25' high								15%		
25' to 30' high								21%		
30' to 35' high								24%		
35' to 40' high								30%		
Over 40' high								33%		
For duct insulation see Line 23 07 13.10 3000										
Aluminum, alloy 3003-H14, under 100 lb.		Q-10	75	.320	Lb.	3.58	15.55		19.13	27.50
100 to 500 lb.			80	.300		2.34	14.60		16.94	25
500 to 1,000 lb.			95	.253		2.21	12.30		14.51	21
1,000 to 2,000 lb.			120	.200		2.13	9.75		11.88	17.20
2,000 to 5,000 lb.			130	.185		2.13	9		11.13	16.05
Over 5,000 lb.			145	.166		2.13	8.05		10.18	14.65
Galvanized steel, under 200 lb.			235	.102		.70	4.97		5.67	8.35
200 to 500 lb.			245	.098		.69	4.77		5.46	8
500 to 1,000 lb.			255	.094		.68	4.58		5.26	7.75
1,000 to 2,000 lb.			265	.091		.67	4.41		5.08	7.45
2,000 to 5,000 lb.			275	.087		.66	4.25		4.91	7.20
Over 5,000 lb.			285	.084		.66	4.10		4.76	7
Stainless steel, type 304, under 100 lb.			165	.145		6.35	7.10		13.45	17.75
100 to 500 lb.			175	.137		4.05	6.65		10.70	14.60
500 to 1,000 lb.			190	.126		2.95	6.15		9.10	12.60

23 31 HVAC Ducts and Casings

23 31 13 – Metal Ducts

23 31 13.13 Rectangular Metal Ducts		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total
		Q-10			Lb.		Labor	Equipment		Ind
1040	1,000 to 2,000 lb.		200	.120		2.89	5.85		8.74	
1050	2,000 to 5,000 lb.		225	.107		2.39	5.20		7.59	
1060	Over 5,000 lb.		235	.102		2.35	4.97		7.32	
1100	For medium pressure ductwork, add						15%			
1200	For high pressure ductwork, add						40%			
1210	For welded ductwork, add						85%			
1220	For 30° fittings, add						11%			
1224	For 40° fittings, add						34%			
1228	For 50° fittings, add						56%			
1232	For 60° fittings, add						79%			
1236	For 70° fittings, add						101%			
1240	For 80° fittings, add						124%			
1244	For 90° fittings, add						147%			
1248	For 100° fittings, add						169%			
1252	Note: Fittings add includes time for detailing and installation.									

23 31 13.19 Metal Duct Fittings

0010	METAL DUCT FITTINGS									
2000	Fabrics for flexible connections, with metal edge	1 Shee	100	.080	L.F.	2.17	4.17		6.34	
2100	Without metal edge	"	160	.050	"	1.64	2.61		4.25	

23 31 16 – Nonmetal Ducts

23 31 16.13 Fibrous-Glass Ducts

0010	FIBROUS-GLASS DUCTS									
3490	Rigid fiberglass duct board, foil reinf. kraft facing									R233100-20
3500	Rectangular, 1" thick, alum. faced, (FRK), std. weight	Q-10	350	.069	SF Surf	.77	3.34		4.11	

23 33 Air Duct Accessories

23 33 13 – Dampers

23 33 13.13 Volume-Control Dampers

0010	VOLUME-CONTROL DAMPERS									
5990	Multi-blade dampers, opposed blade, 8" x 6"	1 Shee	24	.333	Fa.	21	17.40		38.40	
5994	8" x 8"		22	.364		22	18.95		40.95	
5996	10" x 10"		21	.381		25.50	19.85		45.35	
6000	12" x 12"		21	.381		28.50	19.85		48.35	
6020	12" x 18"		18	.444		38.50	23		61.50	
6030	14" x 10"		20	.400		28	21		49	
6031	14" x 14"		17	.471		34	24.50		58.50	
6033	16" x 12"		17	.471		34	24.50		58.50	
6035	16" x 16"		16	.500		42.50	26		68.50	
6037	18" x 16"		15	.533		47	28		75	
6038	18" x 18"		15	.533		50.50	28		78.50	
6070	20" x 16"		14	.571		50.50	30		80.50	
6072	20" x 20"		13	.615		60.50	32		92.50	
6074	22" x 18"		14	.571		60.50	30		90.50	
6076	24" x 16"		11	.727		59.50	38		97.50	
6078	24" x 20"		8	1		70.50	52		122.50	
6080	24" x 24"		8	1		82.50	52		134.50	
6110	26" x 26"		6	1.333		90.50	69.50		160	
6133	30" x 30"	Q-9	6.60	2.424		130	114		244	
6135	32" x 32"		6.40	2.500		151	117		268	
6180	48" x 36"		5.60	2.857		249	134		383	

33 Air Duct Accessories

33.13 - Dampers

33.13 Volume-Control Dampers		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
Multi-blade dampers, parallel blade										
8" x 8"		1 Shee	24	.333	Eq.	82	17.40		99.40	117
16" x 10"			20	.400		103	21		124	146
24" x 16"			11	.727		134	38		172	206
30" x 18"			7	1.143		186	59.50		245.50	295

33.16 Fire Dampers

FIRE DAMPERS		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
Fire damper, curtain type, 1-1/2 hr. rated, vertical, 6" x 6"		1 Shee	24	.333	Eq.	24	17.40		41.40	53
8" x 6"			22	.364		24	18.95		42.95	55.50
16" x 14"			18	.444		44	23		67	84
24" x 20"			8	1		54	52		106	139

33.28 Splitter Damper Assembly

SPLITTER DAMPER ASSEMBLY		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
Self locking, 1' rod		1 Shee	24	.333	Eq.	23.50	17.40		40.90	52
3' rod			22	.364		30	18.95		48.95	62
4' rod			20	.400		33.50	21		54.50	69
6' rod			18	.444		41	23		64	80.50

33.19 - Duct Silencers

DUCT SILENCERS		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
Silencers, noise control for air flow, duct					MCFM	57			57	63

33.33 - Duct-Mounting Access Doors

DUCT ACCESS DOORS		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
Duct access door, insulated, 6" x 6"		1 Shee	14	.571	Eq.	16.05	30		46.05	63
10" x 10"			11	.727		18.45	38		56.45	78.50
12" x 12"			10	.800		20	41.50		61.50	85.50
12" x 18"			9	.889		37	46.50		83.50	111
18" x 18"			8	1		32.50	52		84.50	115
24" x 18"			8	1		44	52		96	128

33.46 - Flexible Ducts

33.46.10 Flexible Air Ducts		R233100-20								
FLEXIBLE AIR DUCTS										
Add to labor for elevated installation of prefabricated (purchased) ductwork										
10' to 15' high							10%			
15' to 20' high							20%			
20' to 25' high							25%			
25' to 30' high							35%			
30' to 35' high							40%			
35' to 40' high							50%			
Over 40' high							55%			
Flexible, coated fiberglass fabric on corr. resist. metal helix pressure to 12" (WG) UL-181										
Non-insulated, 3" diameter		Q-9	400	.040	L.F.	1.12	1.88		3	4.09
5" diameter			320	.050		1.12	2.35		3.47	4.81
6" diameter			280	.057		1.40	2.68		4.08	5.65
7" diameter			240	.067		1.46	3.13		4.59	6.40
8" diameter			200	.080		1.76	3.75		5.51	7.65
10" diameter			160	.100		2.28	4.69		6.97	9.65

23 33 Air Duct Accessories

23 33 46 - Flexible Ducts

23 33 46.10 Flexible Air Ducts

			Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	
1660	12" diameter		Q-9	120	.133	L.F.	2.73	6.25		8.98	
1900	Insulated, 1" thick, PE jacket, 3" diameter	G		380	.042		2.22	1.98		4.20	
1910	4" diameter	G		340	.047		2.22	2.21		4.43	
1920	5" diameter	G		300	.053		2.23	2.50		4.73	
1940	6" diameter	G		260	.062		2.50	2.89		5.39	
1960	7" diameter	G		220	.073		2.73	3.41		6.14	
1980	8" diameter	G		180	.089		3.01	4.17		7.18	
2020	10" diameter	G		140	.114		3.66	5.35		9.01	
2040	12" diameter	G		100	.160		4.20	7.50		11.70	

23 33 53 - Duct Liners

23 33 53.10 Duct Liner Board

0010	DUCT LINER BOARD										
3340	Board type fiberglass liner, FSK, 1-1/2 lb. density										
3344	1" thick		Q-14	150	.107	S.F.	.60	4.69		5.29	
3345	1-1/2" thick			130	.123		.66	5.40		6.06	
3346	2" thick			120	.133		.77	5.85		6.62	
3348	3" thick			110	.145		.99	6.40		7.39	
3350	4" thick			100	.160		1.22	7.05		8.27	
3356	3 lb. density, 1" thick			150	.107		.77	4.69		5.46	
3358	1-1/2" thick			130	.123		.97	5.40		6.37	
3360	2" thick			120	.133		1.18	5.85		7.03	
3362	2-1/2" thick			110	.145		1.38	6.40		7.78	
3364	3" thick			100	.160		1.59	7.05		8.64	
3366	4" thick			90	.178		2	7.80		9.80	
3370	6 lb. density, 1" thick			140	.114		1.09	5.05		6.14	
3374	1-1/2" thick			120	.133		1.46	5.85		7.31	
3378	2" thick			100	.160		1.82	7.05		8.87	
3490	Board type, fiberglass liner, 3 lb. density										
3680	No finish										
3700	1" thick	G	Q-14	170	.094	S.F.	.43	4.14		4.57	
3710	1-1/2" thick	G		140	.114		.64	5.05		5.69	
3720	2" thick	G		130	.123		.86	5.40		6.26	
3940	Board type, non-fibrous foam										
3950	Temperature, bacteria and fungi resistant										
3960	1" thick	G	Q-14	150	.107	S.F.	2.25	4.69		6.94	
3970	1-1/2" thick	G		130	.123		2.95	5.40		8.35	
3980	2" thick	G		120	.133		3.60	5.85		9.45	

23 34 HVAC Fans

23 34 13 - Axial HVAC Fans

23 34 13.10 Axial Flow HVAC Fans

0010	AXIAL FLOW HVAC FANS	R233400-10									
0020	Air conditioning and process air handling										
0030	Axial flow, compact, low sound, 2.5" S.P.										
0050	3,800 CFM, 5 HP		Q-20	3.40	5.882	Fo.	4,800	281		5,081	
0080	6,400 CFM, 5 HP			2.80	7.143		5,350	340		5,690	
0100	10,500 CFM, 7-1/2 HP			2.40	8.333		6,675	400		7,075	
0120	15,600 CFM, 10 HP			1.60	12.500		8,400	600		9,000	
1500	Vaneaxial, low pressure, 2000 CFM, 1/2 HP			3.60	5.556		2,025	266		2,291	
1520	4,000 CFM, 1 HP			3.20	6.250		2,375	299		2,674	

34 HVAC Fans

4 13 – Axial HVAC Fans

13.10 Axial Flow HVAC Fans	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
8,000 CFM, 2 HP	Q-20	2.80	7.143	Eo.	3,000	340		3,340	3,825

4 14 – Blower HVAC Fans

14.10 Blower Type HVAC Fans

BLOWER TYPE HVAC FANS									
Ceiling fan, right angle, extra quiet, 0.10" S.P.									
95 CFM	Q-20	20	1	Eo.	264	48		312	365
210 CFM		19	1.053		310	50.50		360.50	420
385 CFM		18	1.111		395	53		448	515
885 CFM		16	1.250		780	60		840	950
1,650 CFM		13	1.538		1,075	73.50		1,148.50	1,300
2,960 CFM		11	1.818		1,450	87		1,537	1,700
For wall or roof cap, add	1 Shee	16	.500		264	26		290	330
For straight thru fan, add					10%				
For speed control switch, add	1 Elec	16	.500		144	26		170	198
Utility set, steel construction, pedestal, 1/4" S.P.									
Direct drive, 150 CFM, 1/8 HP	Q-20	6.40	3.125	Eo.	805	150		955	1,100
485 CFM, 1/6 HP		5.80	3.448		1,025	165		1,190	1,375
1950 CFM, 1/2 HP		4.80	4.167		1,200	199		1,399	1,600
2410 CFM, 3/4 HP		4.40	4.545		2,200	218		2,418	2,725
3328 CFM, 1-1/2 HP		3	6.667		2,450	320		2,770	3,150
V-belt drive, drive cover, 3 phase									
800 CFM, 1/4 HP	Q-20	6	3.333	Eo.	900	160		1,060	1,225
1,300 CFM, 1/3 HP		5	4		940	191		1,131	1,325
2,000 CFM, 1 HP		4.60	4.348		1,125	208		1,333	1,550
2,900 CFM, 3/4 HP		4.20	4.762		1,500	228		1,728	2,000

4 16 – Centrifugal HVAC Fans

16.10 Centrifugal Type HVAC Fans

CENTRIFUGAL TYPE HVAC FANS									
In-line centrifugal, supply/exhaust booster									
aluminum wheel/hub, disconnect switch, 1/4" S.P.									
500 CFM, 10" diameter connection	Q-20	3	6.667	Eo.	1,150	320		1,470	1,750
1,380 CFM, 12" diameter connection		2	10		1,225	480		1,705	2,075
1,520 CFM, 16" diameter connection		2	10		1,325	480		1,805	2,175
2,560 CFM, 18" diameter connection		1	20		1,450	955		2,405	3,050
3,480 CFM, 20" diameter connection		.80	25		1,725	1,200		2,925	3,700
5,080 CFM, 20" diameter connection		.75	26.667		1,875	1,275		3,150	3,975
Centrifugal, airfoil, motor and drive, complete									
1000 CFM, 1/2 HP	Q-20	2.50	8	Eo.	1,725	385		2,110	2,475
2,000 CFM, 1 HP		2	10		1,950	480		2,430	2,875
4,000 CFM, 3 HP		1.80	11.111		2,500	530		3,030	3,550
8,000 CFM, 7-1/2 HP		1.40	14.286		3,750	685		4,435	5,175
12,000 CFM, 10 HP		1	20		5,000	955		5,955	6,950
Corrosive fume resistant, plastic									
roof ventilators, centrifugal, V belt drive, motor									
1/4" S.P., 250 CFM, 1/4 HP	Q-20	6	3.333	Eo.	4,150	160		4,310	4,825
895 CFM, 1/3 HP		5	4		4,525	191		4,716	5,275
1630 CFM, 1/2 HP		4	5		5,350	239		5,589	6,250
2240 CFM, 1 HP		3	6.667		5,575	320		5,895	6,600
Utility set, centrifugal, V belt drive, motor									
1/4" S.P., 1200 CFM, 1/4 HP	Q-20	6	3.333	Eo.	1,450	160		1,610	1,825
1520 CFM, 1/3 HP		5	4		1,775	191		1,966	2,275
1850 CFM, 1/2 HP		4	5		1,775	239		2,014	2,350

23 34 HVAC Fans

23 34 16 – Centrifugal HVAC Fans

23 34 16.10 Centrifugal Type HVAC Fans		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Unit
							Labor	Equipment		
5080	2180 CFM, 3/4 HP	Q-20	3	6.667	Ea.	2,125	320		2,445	2.8
5100	1/2" S.P., 3600 CFM, 1 HP		2	10		2,450	480		2,930	3.6
5120	4250 CFM, 1-1/2 HP		1.60	12.500		2,675	600		3,275	3.8
5140	4800 CFM, 2 HP	▼	1.40	14.286	▼	3,000	685		3,685	4.3
7000	Roof exhauster, centrifugal, aluminum housing, 12" galvanized									
7020	curb, bird screen, back draft damper, 1/4" S.P.									
7100	Direct drive, 320 CFM, 11" sq. damper	Q-20	7	2.857	Ea.	625	137		762	9
7120	600 CFM, 11" sq. damper		6	3.333		785	160		945	1.1
7140	815 CFM, 13" sq. damper		5	4		785	191		976	1.1
7160	1450 CFM, 13" sq. damper		4.20	4.762		1,275	228		1,503	1.7
7180	2050 CFM, 16" sq. damper		4	5		1,525	239		1,764	2.0
7200	V-belt drive, 1650 CFM, 12" sq. damper		6	3.333		1,125	160		1,285	1.5
7220	2750 CFM, 21" sq. damper		5	4		1,350	191		1,541	1.7
7230	3500 CFM, 21" sq. damper		4.50	4.444		1,525	213		1,738	2.0
7240	4910 CFM, 23" sq. damper		4	5		1,850	239		2,089	2.4
7260	8525 CFM, 28" sq. damper		3	6.667		2,475	320		2,795	3.2
7280	13,760 CFM, 35" sq. damper		2	10		3,325	480		3,805	4.3
7300	20,558 CFM, 43" sq. damper	▼	1	20		6,925	955		7,880	9.3
7320	For 2 speed winding, add					15%				
7340	For explosionproof motor, add					495			495	5
7360	For belt driven, top discharge, add				▼	15%				
8500	Wall exhausters, centrifugal, auto damper, 1/8" S.P.									
8520	Direct drive, 610 CFM, 1/20 HP	Q-20	14	1.429	Ea.	385	68.50		453.50	5
8540	796 CFM, 1/12 HP		13	1.538		755	73.50		828.50	9
8560	822 CFM, 1/6 HP		12	1.667		975	80		1,055	1.2
8580	1,320 CFM, 1/4 HP	▼	12	1.667	▼	1,100	80		1,180	1.3
9500	V-belt drive, 3 phase									
9520	2,800 CFM, 1/4 HP	Q-20	9	2.222	Ea.	1,750	106		1,856	2.0
9540	3,740 CFM, 1/2 HP	"	8	2.500	"	1,800	120		1,920	2.2

23 34 23 – HVAC Power Ventilators

23 34 23.10 HVAC Power Circulators and Ventilators

HVAC POWER CIRCULATORS AND VENTILATORS										
3000	Paddle blade air circulator, 3 speed switch									
3020	42", 5,000 CFM high, 3000 CFM low	G	1 Elec	2.40	3.333	Ea.	154	172	326	4
3040	52", 6,500 CFM high, 4000 CFM low	G	"	2.20	3.636	"	161	187	348	4
3100	For antique white motor, some cast									
3200	For brass plated motor, some cast									
3300	For light adaptor kit, add	G				Ea.	38.50		38.50	
6000	Propeller exhaust, wall shutter, 1/4" S.P.									
6020	Direct drive, two speed									
6100	375 CFM, 1/10 HP	Q-20	10	2	Ea.	450	95.50		545.50	6
6120	730 CFM, 1/7 HP		9	2.222		505	106		611	7
6140	1000 CFM, 1/8 HP		8	2.500		700	120		820	9
6200	4720 CFM, 1 HP	▼	5	4	▼	1,125	191		1,316	1.5
6300	V-belt drive, 3 phase									
6320	6175 CFM, 3/4 HP	Q-20	5	4	Ea.	945	191		1,136	1.3
6340	7500 CFM, 3/4 HP		5	4		1,000	191		1,191	1.4
6360	10,100 CFM, 1 HP		4.50	4.444		1,100	213		1,313	1.5
6380	14,300 CFM, 1-1/2 HP	▼	4	5	▼	1,375	239		1,614	1.8
6650	Residential, bath exhaust, grille, back draft damper									
6660	50 CFM	Q-20	24	.833	Ea.	49	40		89	1
6670	110 CFM	▼	22	.909	▼	82	43.50		125.50	1

34 HVAC Fans

34.23 – HVAC Power Ventilators

34.23.10 HVAC Power Circulators and Ventilators	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Light combination, squirrel cage, 100 watt, 70 CFM	Q-20	24	.833	Ea.	92.50	40		132.50	163
Light/heater combination, ceiling mounted 70 CFM, 1450 watt	Q-20	24	.833	Ea.	174	40		214	252
Heater combination, recessed, 70 CFM		24	.833		55	40		95	121
With 2 infrared bulbs		23	.870		86	41.50		127.50	158
Kitchen exhaust, grille, complete, 160 CFM		22	.909		92	43.50		135.50	167
180 CFM		20	1		78	48		126	159
270 CFM		18	1.111		141	53		194	236
350 CFM	▼	16	1.250	▼	110	60		170	212
Residential roof jacks and wall caps									
Wall cap with back draft damper									
3" & 4" dia. round duct	1 Shee	11	.727	Ea.	22.50	38		60.50	82.50
6" dia. round duct	"	11	.727	"	55.50	38		93.50	119
Roof jack with bird screen and back draft damper									
3" & 4" dia. round duct	1 Shee	11	.727	Ea.	22.50	38		60.50	82.50
3-1/4" x 10" rectangular duct	"	10	.800	"	42	41.50		83.50	110
Transition									
3-1/4" x 10" to 6" dia. round	1 Shee	20	.400	Ea.	25.50	21		46.50	60

34.33 – Air Curtains

34.33.10 Air Barrier Curtains

AIR BARRIER CURTAINS, Incl. motor starters, transformers, and door switches									
Conveyor openings or service windows									
Service window, 5' high x 25" wide	2 Shee	5	3.200	Ea.	350	167		517	640
Environmental separation									
Door heights up to 8', low profile, super quiet									
Unheated, variable speed									
36" wide	2 Shee	4	4	Ea.	620	209		829	1,000
42" wide	▼	3.80	4.211	▼	650	220		870	1,050
48" wide	▼	3.60	4.444	▼	675	232		907	1,100
60" wide	▼	3.40	4.706	▼	705	245		950	1,150
72" wide	Q-3	4.60	6.957	▼	895	360		1,255	1,525
96" wide	▼	4.40	7.273	▼	1,350	380		1,730	2,075
120" wide	▼	4.20	7.619	▼	1,450	395		1,845	2,200
144" wide	▼	4	8	▼	1,800	415		2,215	2,600
Door heights up to 10'									
Unheated									
36" wide	2 Shee	3.80	4.211	Ea.	620	220		840	1,025
42" wide	▼	3.60	4.444	▼	640	232		872	1,050
48" wide	▼	3.40	4.706	▼	660	245		905	1,100
60" wide	▼	3.20	5	▼	1,000	261		1,261	1,500
72" wide	Q-3	4.40	7.273	▼	1,075	380		1,455	1,750
96" wide	▼	4.20	7.619	▼	1,275	395		1,670	2,000
120" wide	▼	4	8	▼	1,775	415		2,190	2,575
144" wide	▼	3.80	8.421	▼	1,925	440		2,365	2,775
Door heights up to 12'									
Unheated									
42" wide	2 Shee	3.40	4.706	Ea.	875	245		1,120	1,350
48" wide	▼	3.20	5	▼	885	261		1,146	1,375
60" wide	▼	3	5.333	▼	905	278		1,183	1,425
72" wide	Q-3	4.20	7.619	▼	1,650	395		2,045	2,400
96" wide	▼	4	8	▼	1,800	415		2,215	2,600

23 34 HVAC Fans

23 34 33 – Air Curtains

23 34 33.10 Air Barrier Curtains

		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Unit
3354	120" wide	Q-3	3.80	8.421	Ea.	2,225	440		2,665	
3358	144" wide		3.60	8.889		2,375	460		2,835	
3400	Door heights up to 16'									
3410	Unheated									
3438	48" wide	2 Shee	3	5.333	Ea.	985	278		1,263	
3442	60" wide	"	2.80	5.714		1,025	298		1,323	
3446	72" wide	Q-3	3.80	8.421		1,925	440		2,365	
3450	96" wide		3.60	8.889		2,025	460		2,485	
3454	120" wide		3.40	9.412		2,575	490		3,065	
3458	144" wide		3.20	10		2,650	520		3,170	
3470	Heated, electric									
3474	48" wide	2 Shee	2.90	5.517	Ea.	1,925	288		2,213	
3478	60" wide	"	2.70	5.926		1,950	310		2,260	
3482	72" wide	Q-3	3.70	8.649		3,325	450		3,775	
3486	96" wide		3.50	9.143		3,450	475		3,925	
3490	120" wide		3.30	9.697		4,625	505		5,130	
3494	144" wide		3.10	10.323		4,725	535		5,260	

23 37 Air Outlets and Inlets

23 37 13 – Diffusers, Registers, and Grilles

23 37 13.10 Diffusers

0010	DIFFUSERS , Aluminum, opposed blade damper unless noted									
0100	Ceiling, linear, also for sidewall									
0500	Perforated, 24" x 24" lay-in panel size, 6" x 6"	1 Shee	16	.500	Ea.	151	26		177	
0520	8" x 8"		15	.533		159	28		187	
0530	9" x 9"		14	.571		161	30		191	
0540	10" x 10"		14	.571		162	30		192	
0560	12" x 12"		12	.667		168	35		203	
0590	16" x 16"		11	.727		189	38		227	
0600	18" x 18"		10	.800		202	41.50		243.50	
0610	20" x 20"		10	.800		218	41.50		259.50	
0620	24" x 24"		9	.889		239	46.50		285.50	
1000	Rectangular, 1 to 4 way blow, 6" x 6"		16	.500		50	26		76	
1010	8" x 8"		15	.533		58	28		86	
1014	9" x 9"		15	.533		64.50	28		92.50	
1016	10" x 10"		15	.533		80	28		108	
1020	12" x 6"		15	.533		71.50	28		99.50	
1040	12" x 9"		14	.571		75.50	30		105.50	
1060	12" x 12"		12	.667		84	35		119	
1070	14" x 6"		13	.615		77.50	32		109.50	
1074	14" x 14"		12	.667		128	35		163	
1150	18" x 18"		9	.889		136	46.50		182.50	
1160	21" x 21"		8	1		215	52		267	
1170	24" x 12"		10	.800		163	41.50		204.50	
1500	Round, butterfly damper, steel, diffuser size, 6" diameter		18	.444		24.50	23		47.50	
1520	8" diameter		16	.500		26	26		52	
1540	10" diameter		14	.571		32	30		62	
1560	12" diameter		12	.667		42	35		77	
1580	14" diameter		10	.800		52	41.50		93.50	
2000	T bar mounting, 24" x 24" lay-in frame, 6" x 6"		16	.500		45.50	26		71.50	
2020	8" x 8"		14	.571		47	30		77	

37 Air Outlets and Inlets

37.13 – Diffusers, Registers, and Grilles

13.10 Diffusers		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
	12" x 12"	1 Shee	12	.667	Ea.	55.50	35		90.50	114
	16" x 16"		11	.727		75	38		113	141
	18" x 18"		10	.800		83	41.50		124.50	155
For steel diffusers instead of aluminum, deduct						10%				

13.30 Grilles

GRILLES										
Aluminum										
Air return, steel, 6" x 6"		1 Shee	26	.308	Ea.	18.15	16.05		34.20	44.50
	10" x 6"		24	.333		18.15	17.40		35.55	46.50
	16" x 8"		22	.364		26.50	18.95		45.45	58
	12" x 12"		22	.364		26.50	18.95		45.45	58
	24" x 12"		18	.444		34.50	23		57.50	73.50
	24" x 18"		16	.500		42.50	26		68.50	86.50
	36" x 24"		14	.571		73	30		103	126
Filter grille with filter, 12" x 12"			24	.333		51	17.40		68.40	83
	18" x 12"		20	.400		68	21		89	107
	24" x 18"		18	.444		80.50	23		103.50	124
	24" x 24"		16	.500		94	26		120	143
For steel grilles instead of aluminum in above, deduct						10%				

13.60 Registers

REGISTERS										
Air supply										
Ceiling/wall, O.B. damper, anodized aluminum										
One or two way deflection, adj. curved face bars										
	8" x 4"	1 Shee	26	.308	Ea.	34.50	16.05		50.55	62.50
	12" x 12"		18	.444		63.50	23		86.50	106
	20" x 6"		18	.444		56.50	23		79.50	98
	24" x 8"		13	.615		76.50	32		108.50	133
	24" x 18"		12	.667		142	35		177	209
Above registers in steel instead of aluminum, deduct						10%				
Floor, toe operated damper, enameled steel										
	4" x 8"	1 Shee	32	.250	Ea.	27.50	13.05		40.55	50
	8" x 10"		22	.364		33.50	18.95		52.45	66
	10" x 10"		20	.400		40	21		61	76
	14" x 14"		16	.500		141	26		167	195
	14" x 20"		15	.533		188	28		216	250
Air return										
Ceiling or wall, fixed 45° face blades										
Adjustable O.B. damper, anodized aluminum										
	4" x 8"	1 Shee	26	.308	Ea.	28.50	16.05		44.55	56
	6" x 10"		19	.421		28.50	22		50.50	65
	24" x 24"		11	.727		94.50	38		132.50	162
	24" x 36"		8	1		151	52		203	246
For steel construction instead of aluminum, deduct						10%				

37.15 – Louvers

15.40 HVAC Louvers

HVAC LOUVERS										
Aluminum, extruded, with screen, mill finish										
Brick vent, see also Section 04 05 23.19										
	Standard, 4" deep, 8" wide, 5" high	1 Shee	24	.333	Ea.	34.50	17.40		51.90	64
	Modular, 4" deep, 7-3/4" wide, 5" high		24	.333		36	17.40		53.40	66
	Speed brick, 4" deep, 11-5/8" wide, 3-7/8" high		24	.333		36	17.40		53.40	66

23 37 Air Outlets and Inlets

23 37 15 - Louvers

23 37 15.40 HVAC Louvers

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Is Incl.
							Labor	Equipment		
1400	Fuel oil brick, 4" deep, 8" wide, 5" high	1 Shee	24	.333	Ea.	61.50	17.40		78.90	
2000	Cooling tower and mechanical equip., screens, light weight		40	.200	S.F.	15.40	10.45		25.85	
2020	Standard weight		35	.229		41	11.90		52.90	
2500	Dual combination, automatic, intake or exhaust		20	.400		56	21		77	
2520	Manual operation		20	.400		41.50	21		62.50	
2540	Electric or pneumatic operation		20	.400		41.50	21		62.50	
2560	Mator, for electric or pneumatic	▼	14	.571	Ea.	480	30		510	
3000	Fixed blade, continuous line									
3100	Mullian type, stormproof	1 Shee	28	.286	S.F.	41.50	14.90		56.40	
3200	Stormproof		28	.286		41.50	14.90		56.40	
3300	Vertical line	▼	28	.286	▼	49.50	14.90		64.40	
3500	For damper to use with above, add					50%	30%			
3520	Mator, for damper, electric or pneumatic	1 Shee	14	.571	Ea.	480	30		510	
4000	Operating, 45°, manual, electric or pneumatic		24	.333	S.F.	50	17.40		67.40	
4100	Mator, for electric or pneumatic		14	.571	Ea.	480	30		510	
4200	Penthouse, roof		56	.143	S.F.	24.50	7.45		31.95	
4300	Walls		40	.200		58	10.45		68.45	
5000	Thinline, under 4" thick, fixed blade	▼	40	.200	▼	24	10.45		34.45	
5010	Finishes, applied by mfr. at additional cost, available in colors									
5020	Prime coat only, add				S.F.	3.30			3.30	
5040	Baked enamel finish coating, add					6.10			6.10	
5060	Anodized finish, add					6.60			6.60	
5080	Duranodic finish, add					12			12	
5100	Fluoropolymer finish coating, add					18.90			18.90	
9980	For small orders (under 10 pieces), add				▼	25%				

23 37 23 - HVAC Gravity Ventilators

23 37 23.10 HVAC Gravity Air Ventilators

0010	HVAC GRAVITY AIR VENTILATORS, Incl. base and damper									
1280	Rotary ventilators, wind driven, galvanized									
1300	4" neck diameter	Q-9	20	.800	Ea.	50	37.50		87.50	
1340	6" neck diameter		16	1		56	47		103	
1400	12" neck diameter		10	1.600		81	75		156	
1500	24" neck diameter, 3,100 CFM		8	2		236	94		330	
1540	36" neck diameter, 5,500 CFM	▼	6	2.667	▼	695	125		820	
2000	Stationary, gravity, syphon, galvanized									
2160	6" neck diameter, 66 CFM	Q-9	16	1	Ea.	53	47		100	
2240	12" neck diameter, 160 CFM		10	1.600		91	75		166	
2340	24" neck diameter, 900 CFM		8	2		248	94		342	
2380	36" neck diameter, 2,000 CFM		6	2.667		775	125		900	
4200	Stationary mushroom, aluminum, 16" orifice diameter		10	1.600		565	75		640	
4220	26" orifice diameter		6.15	2.602		830	122		952	
4230	30" orifice diameter		5.71	2.802		1,225	132		1,357	
4240	38" orifice diameter		5	3.200		1,750	150		1,900	
4250	42" orifice diameter		4.70	3.404		2,300	160		2,460	
4260	50" orifice diameter	▼	4.44	3.604	▼	2,750	169		2,919	
5000	Relief vent									
5500	Rectangular, aluminum, galvanized curb									
5510	intake/exhaust, 0.033" SP									
5580	500 CFM, 12" x 12"	Q-9	8.60	1.860	Ea.	645	87.50		732.50	
5600	600 CFM, 12" x 16"		8	2		730	94		824	
5640	1000 CFM, 12" x 24"		6.60	2.424		820	114		934	
5680	3000 CFM, 20" x 42"	▼	4	4	▼	1,450	188		1,638	

37 Air Outlets and Inlets

37.23 – HVAC Gravity Ventilators

23.10 HVAC Gravity Air Ventilators	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Size is throat area, volume is at 500 fpm									

38 Ventilation Hoods

38.13 – Commercial-Kitchen Hoods

38.13.10 Hood and Ventilation Equipment

HOOD AND VENTILATION EQUIPMENT									
Exhaust hood, sst, gutter on all sides, 4' x 4' x 2'	1 Carp	1.80	4.444	Eo.	4,675	196		4,871	5,425
4' x 4' x 7'	"	1.60	5		7,425	221		7,646	8,525
Hood fire protection system, minimum	Q-1	3	5.333		4,400	262		4,662	5,250
Maximum	"	1	16	▼	35,300	785		36,085	40,100

41 Particulate Air Filtration

41.13 – Panel Air Filters

41.13.10 Panel Type Air Filters

PANEL TYPE AIR FILTERS									
Mechanical media filtration units									
High efficiency type, with frame, non-supported	G			MCFM	45			45	49.50
Supported type	G			"	60			60	66
Throwaway glass or paper media type				Eo.	3.35			3.35	3.69

41.16 – Renewable-Media Air Filters

41.16.10 Disposable Media Air Filters

DISPOSABLE MEDIA AIR FILTERS									
Renewable disposable roll				MCFM	11.50			11.50	12.65

41.19 – Washable Air Filters

41.19.10 Permanent Air Filters

PERMANENT AIR FILTERS									
Permanent washable	G			MCFM	20			20	22

41.23 – Extended Surface Filters

41.23.10 Expanded Surface Filters

EXPANDED SURFACE FILTERS									
Medium efficiency, extended surface	G			MCFM	5.50			5.50	6.05

42 Gas-Phase Air Filtration

42.13 – Activated-Carbon Air Filtration

42.13.10 Charcoal Type Air Filtration

CHARCOAL TYPE AIR FILTRATION									
Activated charcoal type, full flow				MCFM	600			600	660
Full flow, impregnated media 12" deep					225			225	248
HEPA filter & frame for field erection					300			300	330
HEPA filter-diffuser, ceiling install.				▼	300			300	330

23 43 Electronic Air Cleaners

23 43 13 – Washable Electronic Air Cleaners

23 43 13.10 Electronic Air Cleaners		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	
ELECTRONIC AIR CLEANERS							Labor	Equipment		
0010	Electronic air cleaner, duct mounted									
2000	1000 CFM	1 Shee	4	2	Ea.	380	104		484	
2200	1200 CFM		3.80	2.105		430	110		540	
2250	1400 CFM		3.60	2.222		435	116		551	

23 51 Breechings, Chimneys, and Stacks

23 51 13 – Draft Control Devices

23 51 13.13 Draft-Induction Fans

DRAFT-INDUCTION FANS										
0010	Breeching installation									
1000	Hot gas, 600°F, variable pitch pulley and motor									
1860	8" diam. inlet, 1/4 H.P., 1 phase, 1120 CFM	Q-9	4	4	Ea.	2,675	188		2,863	3.3
1900	12" diam. inlet, 3/4 H.P., 3 phase, 2960 CFM		3	5.333		3,650	250		3,900	4.4
1980	24" diam. inlet, 7-1/2 H.P., 3 phase, 17,760 CFM		.80	20		10,500	940		11,440	12.5
2300	For multi-blade damper at fan inlet, add					20%				

23 51 23 – Gas Vents

23 51 23.10 Gas Chimney Vents

GAS CHIMNEY VENTS, Prefab metal, U.L. listed										
0010	Gas, double wall, galvanized steel									
0080	3" diameter	Q-9	72	.222	V.L.F.	4.65	10.45		15.10	
0100	4" diameter		68	.235		6.35	11.05		17.40	
0120	5" diameter		64	.250		7.20	11.75		18.95	
0140	6" diameter		60	.267		9.05	12.50		21.55	
0160	7" diameter		56	.286		10.40	13.40		23.80	
0180	8" diameter		52	.308		15.80	14.45		30.25	
0200	10" diameter		48	.333		30	15.65		45.65	
0220	12" diameter		44	.364		36	17.05		53.05	
0260	16" diameter		40	.400		86	18.75		104.75	
0300	20" diameter	Q-10	36	.667		125	32.50		157.50	

23 51 26 – All-Fuel Vent Chimneys

23 51 26.30 All-Fuel Vent Chimneys, Double Wall, St. Stl.

ALL-FUEL VENT CHIMNEYS, DOUBLE WALL, STAINLESS STEEL										
0010	6" diameter	Q-9	60	.267	V.L.F.	62	12.50		74.50	
7800	8" diameter		52	.308		71	14.45		85.45	
7806	10" diameter		48	.333		79	15.65		94.65	
7808	12" diameter		44	.364		90.50	17.05		107.55	
7810	14" diameter		42	.381		102	17.90		119.90	

23 51 33 – Insulated Sectional Chimneys

23 51 33.10 Prefabricated Insulated Sectional Chimneys

PREFABRICATED INSULATED SECTIONAL CHIMNEYS										
0010	High temp. (2000°F), steel jacket, acid resistant refractory lining									
9000	11 ga. galvanized jacket, U.L. listed									
9010	Straight section, 48" long, 10" diameter	Q-10	13.30	1.805	Ea.	400	88		488	
9040	18" diameter		7.40	3.243		615	158		773	
9070	36" diameter		2.70	8.889		1,325	435		1,760	2.1
9090	48" diameter	Q-11	2.70	11.852		1,925	590		2,515	3.0
9120	Tee section, 10" diameter	Q-10	4.40	5.455		855	265		1,120	1.3
9140	18" diameter		2.40	10		1,225	485		1,710	2.1

51 Breechings, Chimneys, and Stacks

133 - Insulated Sectional Chimneys

33.10 Prefabricated Insulated Sectional Chimneys	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
36" diameter	Q-10	.80	30	Ea.	3,975	1,450		5,425	6,600
48" diameter	Q-11	.90	35.556		6,775	1,775		8,550	10,200
Cleanout pier section, 10" diameter	Q-10	3.50	6.857		655	335		990	1,225
18" diameter		1.90	12.632		885	615		1,500	1,900
36" diameter	▼	.75	32		1,625	1,550		3,175	4,150
48" diameter	Q-11	.75	42.667		2,475	2,125		4,600	5,950
For drain, add					53%				
Elbow, 30° and 45°, 10" diameter	Q-10	6.60	3.636		555	177		732	880
18" diameter		3.70	6.486		900	315		1,215	1,475
36" diameter	▼	1.30	18.462		2,225	900		3,125	3,825
48" diameter	Q-11	1.35	23.704		3,900	1,175		5,075	6,075
For 60° and 90° elbow, add					112%				
End cap, 10" diameter	Q-10	26	.923		955	45		1,000	1,125
18" diameter		15	1.600		1,350	78		1,428	1,600
36" diameter	▼	5	4.800		2,350	234		2,584	2,950
48" diameter	Q-11	5.30	6.038		3,475	300		3,775	4,250
Increaser (1 diameter), 10" diameter	Q-10	6.60	3.636		475	177		652	790
18" diameter		3.70	6.486		740	315		1,055	1,300
36" diameter	▼	1.30	18.462		1,450	900		2,350	2,975
42" diameter	Q-11	1.60	20		1,600	995		2,595	3,275
48" diameter		1.35	23.704		1,925	1,175		3,100	3,900
54" diameter	▼	1.10	29.091		2,325	1,450		3,775	4,750
For expansion joints, add to straight section					7%				
For 1/4" hot rolled steel jacket, add					157%				
For 2950°F very high temperature, add					89%				
26 ga. aluminized jacket, straight section, 48" long									
10" diameter	Q-10	15.30	1.569	V.L.F.	237	76.50		313.50	375
18" diameter		8.50	2.824		365	137		502	615
36" diameter		3.10	7.742	▼	845	375		1,220	1,500
Draw band, galv. stl., 11 gauge, 10" diameter		32	.750	Ea.	65	36.50		101.50	127
12" diameter		30	.800		69	39		108	135
18" diameter		26	.923		86	45		131	163
36" diameter	▼	18	1.333		146	65		211	259
48" diameter	Q-11	20	1.600	▼	251	79.50		330.50	400

52 Heating Boilers

13 - Electric Boilers

13.10 Electric Boilers, ASME

ELECTRIC BOILERS, ASME, Standard controls and trim									
Steam, 6 KW, 20.5 MBH	Q-19	1.20	20	Ea.	3,625	1,000		4,625	5,525
60 KW, 205 MBH		1	24		6,250	1,225		7,475	8,700
112 KW, 382 MBH		.75	32		8,550	1,625		10,175	11,800
222 KW, 758 MBH	▼	.55	43.636		13,500	2,200		15,700	18,200
518 KW, 1768 MBH	Q-21	.36	88.889		22,800	4,600		27,400	32,100
814 KW, 2778 MBH		.25	128		31,900	6,650		38,550	45,100
2,340 KW, 7984 MBH	▼	.16	200		65,500	10,400		75,900	87,500
Hot water, 7.5 KW, 25.6 MBH	Q-19	1.30	18.462		3,825	935		4,760	5,600
90 KW, 307 MBH		1.10	21.818		5,575	1,100		6,675	7,775
296 KW, 1010 MBH	▼	.55	43.636		11,900	2,200		14,100	16,400
1036 KW, 3536 MBH	Q-21	.34	94.118		27,700	4,875		32,575	37,900
2400 KW, 8191 MBH	▼	.25	128	▼	58,000	6,650		64,650	73,500

23 52 Heating Boilers

23 52 13 - Electric Boilers

23 52 13.10 Electric Boilers, ASME

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Tank
2820	3600 KW, 12,283 MBH	Q-21	.16	200	Ea.	81,500	10,400		91,900	105

23 52 23 - Cast-Iron Boilers

23 52 23.20 Gas-Fired Boilers

0010	GAS-FIRED BOILERS , Natural or propane, standard controls, packaged									
1000	Cast iron, with insulated jacket									
2000	Steam, gross output, 81 MBH	Q-7	1.40	22.857	Ea.	1,950	1,200		3,150	
2080	203 MBH		.90	35.556		3,100	1,875		4,975	
2180	400 MBH		.56	56.838		5,200	3,025		8,225	
2240	765 MBH		.43	74.419		10,300	3,950		14,250	
2320	1,875 MBH		.30	106		16,400	5,650		22,050	
2440	4,720 MBH		.15	207		73,500	11,000		84,500	
2480	6,100 MBH		.13	246		81,000	13,100		94,100	
2540	6,970 MBH		.10	320		88,500	17,000		105,500	
3000	Hot water, gross output, 80 MBH		1.46	21.918		1,775	1,175		2,950	
3140	320 MBH		.80	40		4,200	2,125		6,325	
3260	1,088 MBH		.40	80		12,500	4,250		16,750	
3360	2,856 MBH		.20	160		22,100	8,475		30,575	
3380	3,264 MBH		.18	179		23,500	9,525		33,025	
3480	6,100 MBH		.13	250		81,000	13,300		94,300	
3540	6,970 MBH		.09	359		88,500	19,100		107,600	
7000	For tankless water heater, add					10%				

23 52 23.30 Gas/Oil Fired Boilers

0010	GAS/OIL FIRED BOILERS , Combination with burners and controls, packaged									
1000	Cast iron with insulated jacket									
2000	Steam, gross output, 720 MBH	Q-7	.43	74.074	Ea.	13,300	3,925		17,225	
2080	1,600 MBH		.30	107		18,900	5,675		24,575	
2140	2,700 MBH		.19	165		25,400	8,800		34,200	
2280	5,520 MBH		.14	235		82,000	12,500		94,500	
2340	6,390 MBH		.11	296		88,000	15,700		103,700	
2380	6,970 MBH		.09	372		93,000	19,700		112,700	
2900	Hot water, gross output									
2910	200 MBH	Q-6	.62	39.024	Ea.	8,925	2,025		10,950	
2920	300 MBH		.49	49.080		8,925	2,550		11,475	
2930	400 MBH		.41	57.971		10,400	3,025		13,425	
2940	500 MBH		.36	67.039		11,300	3,475		14,775	
3000	584 MBH	Q-7	.44	72.072		12,400	3,825		16,225	
3060	1,460 MBH		.28	113		24,800	6,000		30,800	
3160	4,088 MBH		.16	195		52,000	10,300		62,300	
3300	13,500 MBH, 403.3 BHP		.04	727		161,500	38,600		200,100	

23 52 23.40 Oil-Fired Boilers

0010	OIL-FIRED BOILERS , Standard controls, flame retention burner, packaged									
1000	Cast iron, with insulated flush jacket									
2000	Steam, gross output, 109 MBH	Q-7	1.20	26.667	Ea.	2,025	1,425		3,450	
2060	207 MBH		.90	35.556		2,775	1,875		4,650	
2180	1,084 MBH		.38	85.106		9,400	4,525		13,925	
2280	3,000 MBH		.19	170		21,600	9,025		30,625	
2380	5,520 MBH		.14	235		68,500	12,500		81,000	
2460	6,970 MBH		.09	363		88,000	19,300		107,300	
3000	Hot water, same price as steam									
4000	For tankless coil in smaller sizes, add				Ea.	15%				

52 Heating Boilers

26 – Steel Boilers

26.40 Oil-Fired Boilers

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
OIL-FIRED BOILERS , Standard controls, flame retention burner									
Steel, with insulated flush jacket									
Hot water, gross output, 103 MBH	Q-6	1.60	15	Ea.	1,800	780		2,580	3,150
420 MBH		.70	34.483		5,500	1,800		7,300	8,750
3,150 MBH	▼	.13	184		37,100	9,600		46,700	55,500
For tankless coil in steam or hot water, add				▼	7%				

28 – Swimming Pool Boilers

28.10 Swimming Pool Heaters

SWIMMING POOL HEATERS , Not including wiring, external piping, base or pod,									
Gas fired, input, 155 MBH	Q-6	1.50	16	Ea.	1,700	830		2,530	3,100
199 MBH		1	24		1,800	1,250		3,050	3,850
500 MBH		.40	60		7,650	3,125		10,775	13,100
1,800 MBH	▼	.14	171		16,600	8,900		25,500	31,700
Electric, 12 KW, 4,800 gallon pool	Q-19	3	8		2,050	405		2,455	2,850
15 KW, 7,200 gallon pool		2.80	8.571		2,075	435		2,510	2,950
24 KW, 9,600 gallon pool		2.40	10		2,400	505		2,905	3,400
57 KW, 24,000 gallon pool	▼	1.20	20	▼	3,525	1,000		4,525	5,400

54 Furnaces

4 13 – Electric-Resistance Furnaces

13.10 Electric Furnaces

ELECTRIC FURNACES , Hot air, blowers, std. controls not including gas, oil or flue piping									
Electric, UL listed									
10.2 MBH	Q-20	5	4	Ea.	475	191		666	810
17.1 MBH		4.80	4.167		495	199		694	850
27.3 MBH		4.60	4.348		600	208		808	975
34.1 MBH	▼	4.40	4.545	▼	635	218		853	1,025

4 16 – Fuel-Fired Furnaces

16.13 Gas-Fired Furnaces

GAS-FIRED FURNACES									
Gas, AGA certified, upflow, direct drive models									
45 MBH input	Q-9	4	4	Ea.	620	188		808	965
60 MBH input		3.80	4.211		645	198		843	1,000
75 MBH input		3.60	4.444		665	209		874	1,050
100 MBH input	▼	3.20	5	▼	720	235		955	1,150

16.16 Oil-Fired Furnaces

OIL-FIRED FURNACES									
Oil, UL listed, atomizing gun type burner									
56 MBH output	Q-9	3.60	4.444	Ea.	1,475	209		1,684	1,950
84 MBH output		3.50	4.571		1,850	215		2,065	2,375
95 MBH output		3.40	4.706		1,875	221		2,096	2,400
134 MBH output		3.20	5		2,175	235		2,410	2,750
151 MBH output	▼	3	5.333	▼	2,250	250		2,500	2,850

23 55 Fuel-Fired Heaters

23 55 13 – Fuel-Fired Duct Heaters

23 55 13.16 Gas-Fired Duct Heaters		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl.
							Labor	Equipment		
0010	GAS-FIRED DUCT HEATERS , Includes burner, controls, stainless steel									
0020	heat exchanger. Gas fired, electric ignition									
0030	Indoor installation									
0100	120 MBH output	Q-5	4	4	Ea.	2,125	201		2,326	
0130	200 MBH output		2.70	5.926		2,850	297		3,147	
0140	240 MBH output		2.30	6.957		2,975	350		3,325	
0180	320 MBH output		1.60	10		3,550	500		4,050	
0300	For powered venter and adapter, add					460			460	
0502	For required flue pipe, see Section 23 51 23.10									
1000	Outdoor installation, with power venter									
1020	75 MBH output	Q-5	4	4	Ea.	2,775	201		2,976	
1060	120 MBH output		4	4		3,525	201		3,726	
1100	187 MBH output		3	5.333		5,050	267		5,317	
1140	300 MBH output		1.80	8.889		6,100	445		6,545	
1180	450 MBH output		1.40	11.429		7,450	575		8,025	

23 55 33 – Fuel-Fired Unit Heaters

23 55 33.13 Oil-Fired Unit Heaters		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl.
							Labor	Equipment		
0010	OIL-FIRED UNIT HEATERS , Cabinet, grilles, fan, ctrl, burner, no piping									
6000	Oil fired, suspension mounted, 94 MBH output	Q-5	4	4	Ea.	3,400	201		3,601	
6040	140 MBH output		3	5.333		3,625	267		3,892	
6060	184 MBH output		3	5.333		3,900	267		4,167	

23 55 33.16 Gas-Fired Unit Heaters

23 55 33.16 Gas-Fired Unit Heaters		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl.
							Labor	Equipment		
0010	GAS-FIRED UNIT HEATERS , Cabinet, grilles, fan, ctrl., burner, no piping									
0022	thermostat, no piping. For flue see Section 23 51 23.10									
1000	Gas fired, floor mounted									
1100	60 MBH output	Q-5	10	1.600	Ea.	830	80		910	
1140	100 MBH output		8	2		915	100		1,015	
1180	180 MBH output		6	2.667		1,300	134		1,434	
2000	Suspension mounted, propeller fan, 20 MBH output		8.50	1.882		985	94.50		1,079.50	
2040	60 MBH output		7	2.286		1,200	115		1,315	
2060	80 MBH output		6	2.667		1,225	134		1,359	
2100	130 MBH output		5	3.200		1,500	160		1,660	
2240	320 MBH output		2	8		2,650	400		3,050	
2500	For powered venter and adapter, add					355			355	
5000	Wall furnace, 17.5 MBH output	Q-5	6	2.667		715	134		849	
5020	24 MBH output		5	3.200		835	160		995	
5040	35 MBH output		4	4		960	201		1,161	

23 56 Solar Energy Heating Equipment

23 56 16 – Packaged Solar Heating Equipment

23 56 16.40 Solar Heating Systems		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl.
							Labor	Equipment		
0010	SOLAR HEATING SYSTEMS									
0020	System/Package prices, not including connecting									
0030	pipe, insulation, or special heating/plumbing fixtures									
0500	Hot water, standard package, low temperature									
0540	1 collector, circulator, fittings, 65 gal. tank	G	Q-1	.50	32	Ea.	1,625	1,575	3,200	
0580	2 collectors, circulator, fittings, 120 gal. tank	G		.40	40		2,375	1,975	4,350	
0620	3 collectors, circulator, fittings, 120 gal. tank	G		.34	47.059		3,225	2,325	5,550	
0700	Medium temperature package									
0720	1 collector, circulator, fittings, 80 gal. tank	G	Q-1	.50	32	Ea.	2,375	1,575	3,950	

56 Solar Energy Heating Equipment

56 16 - Packaged Solar Heating Equipment

56 16.40 Solar Heating Systems		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
2 collectors, circulator, fittings, 120 gal. tank	G	Q-1	.40	40	Eq.	3,425	1,975		5,400	6,750
3 collectors, circulator, fittings, 120 gal. tank	G	▼	.30	53.333		4,450	2,625		7,075	8,850
For each additional 120 gal. tank, add	G				▼	1,550			1,550	1,700

56 19 - Solar Heating Components

56 19.50 Solar Heating Ancillary

SOLAR HEATING ANCILLARY										
Circulators, air										
Blowers										
Reversible fan, 20" diameter, 2 speed	G	Q-9	18	.889	Eq.	113	41.50		154.50	188
1/12 HP, 30 GPM	G	Q-1	10	1.600	"	345	78.50		423.50	500
Collector panels, air with aluminum absorber plate										
Wall or roof mount										
Flat black, plastic glazing										
4' x 8'	G	Q-9	6	2.667	Eq.	660	125		785	920
Flush roof mount, 10' to 16' x 22" wide	G	"	96	.167	L.F.	470	7.80		477.80	525
Collector panels, liquid with copper absorber plate										
Alum. frame, 4' x 8', 5/32" single glazing	G	Q-1	9.50	1.684	Eq.	995	83		1,078	1,225
Alum. frame, 4' x 10', 5/32" single glazing	G		6	2.667		1,150	131		1,281	1,450
Flat black, alum. frame, 3.5' x 7.5'	G		9	1.778		690	87.50		777.50	890
4' x 8'	G		5.50	2.909		865	143		1,008	1,175
4' x 10'	G		10	1.600		970	78.50		1,048.50	1,200
4' x 12.5'	G		5	3.200		1,175	157		1,332	1,500
Liquid, full wetted, plastic, alum. frame, 4' x 10'	G		5	3.200		234	157		391	495
Collector panel mounting, flat roof or ground rack	G		7	2.286	▼	228	112		340	420
Roof clamps	G	▼	70	.229	Set	2.46	11.25		13.71	19.65
Roof strap, teflon	G	1 Plum	205	.039	L.F.	19.95	2.13		22.08	25
Differential controller with two sensors										
Thermostat, hard wired	G	1 Plum	8	1	Eq.	83	54.50		137.50	174
Five station with digital read-out	G	"	3	2.667	"	229	146		375	470
Heat exchanger										
Fluid to fluid package includes two circulating pumps expansion tank, check valve, relief valve controller, high temperature cutoff and sensors										
	G	Q-1	2.50	6.400	Eq.	725	315		1,040	1,275
Heat transfer fluid										
Propylene glycol, inhibited anti-freeze	G	1 Plum	28	.286	Gal.	14.50	15.60		30.10	39.50
Water storage tank with heat exchanger and electric element										
80 gal. with 2" x 2 lb. density insulation	G	1 Plum	1.60	5	Eq.	1,100	273		1,373	1,600
120 gal. with 2" x 2 lb. density insulation	G		1.40	5.714		1,250	310		1,560	1,850
120 gal. with 2" x 2 lb. density insul., 40 S.F. heat coil	G	▼	1.40	5.714	▼	1,575	310		1,885	2,200

57 Heat Exchangers for HVAC

57 16 - Steam-to-Water Heat Exchangers

57 16.10 Shell/Tube Type Steam-to-Water Heat Exch.

SHELL AND TUBE TYPE STEAM-TO-WATER HEAT EXCHANGERS										
Shell & tube type, 2 or 4 pass, 3/4" O.D. copper tubes, C.I. heads, C.I. tube sheet, steel shell										
Hot water 40°F to 180°F, by steam at 10 PSI										
8 GPM		Q-5	6	2.667	Eq.	1,925	134		2,059	2,325
10 GPM			5	3.200		2,900	160		3,060	3,450
40 GPM		▼	4	4	▼	4,500	201		4,701	5,250

23 57 Heat Exchangers for HVAC

23 57 16 – Steam-to-Water Heat Exchangers

23 57 16.10 Shell/Tube Type Steam-to-Water Heat Exch.		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total
							Labor	Equipment		
0180	64 GPM	Q-5	2	8	↓	6,900	400		7,300	1
0200	96 GPM	↓	1	16	↓	9,250	800		10,050	1
0220	120 GPM	Q-6	1.50	16	↓	12,100	830		12,930	1

23 57 19 – Liquid-to-Liquid Heat Exchangers

23 57 19.13 Plate-Type, Liquid-to-Liquid Heat Exchangers

0010 PLATE-TYPE, LIQUID-TO-LIQUID HEAT EXCHANGERS										
3000	Plate type,									
3100	400 GPM	Q-6	.80	30	↓	33,600	1,550		35,150	1
3120	800 GPM	"	.50	48	↓	58,000	2,500		60,500	1
3140	1200 GPM	Q-7	.34	94.118	↓	86,000	5,000		91,000	1
3160	1800 GPM	"	.24	133	↓	114,000	7,075		121,075	1

23 57 19.16 Shell-Type, Liquid-to-Liquid Heat Exchangers

0010 SHELL-TYPE, LIQUID-TO-LIQUID HEAT EXCHANGERS										
1000	Hot water 40°F to 140°F, by water at 200°F									
1020	7 GPM	Q-5	6	2.667	↓	2,375	134		2,509	1
1040	16 GPM		5	3.200	↓	3,350	160		3,510	1
1060	34 GPM		4	4	↓	5,100	201		5,301	1
1100	74 GPM	↓	1.50	10.667	↓	9,225	535		9,760	1

23 62 Packaged Compressor and Condenser Units

23 62 13 – Packaged Air-Cooled Refrigerant Compressor and Condenser Units

23 62 13.10 Packaged Air-Cooled Refrig. Condensing Units

0010 PACKAGED AIR-COOLED REFRIGERANT CONDENSING UNITS										
0020	Condensing unit									
0030	Air cooled, compressor, standard controls									
0050	1.5 ton	Q-5	2.50	6.400	↓	1,125	320		1,445	1
0500	5 ton	↓	.60	26.667	↓	2,250	1,325		3,575	1
0600	10 ton	↓	.50	32	↓	4,950	1,600		6,550	1
0700	20 ton	Q-6	.40	60	↓	11,200	3,125		14,325	1

23 63 Refrigerant Condensers

23 63 13 – Air-Cooled Refrigerant Condensers

23 63 13.10 Air-Cooled Refrig. Condensers

0010 AIR-COOLED REFRIG. CONDENSERS, Ratings for 30°F TD, R-22.										
0080	Air cooled, belt drive, propeller fan									
0240	50 ton	Q-6	.69	34.985	↓	10,400	1,825		12,225	1
0280	59 ton	↓	.58	41.308	↓	12,400	2,150		14,550	1
0320	73 ton		.47	51.173	↓	16,300	2,650		18,950	1
0360	86 ton		.40	60.302	↓	18,800	3,125		21,925	1
0380	88 ton	↓	.39	61.697	↓	20,200	3,200		23,400	1
1550	Air cooled, direct drive, propeller fan									
1590	1 ton	Q-5	3.80	4.211	↓	685	211		896	1
1600	1-1/2 ton	↓	3.60	4.444	↓	840	223		1,063	1
1620	2 ton		3.20	5	↓	900	251		1,151	1
1640	5 ton		2	8	↓	1,825	400		2,225	1
1660	10 ton	↓	1.40	11.429	↓	2,825	575		3,400	1
1690	16 ton		1.10	14.545	↓	3,975	730		4,705	1
1720	26 ton	↓	.84	19.002	↓	5,150	955		6,105	1

63 Refrigerant Condensers

63.13 – Air-Cooled Refrigerant Condensers

13.10 Air-Cooled Refrig. Condensers	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
41 ton	Q-6	.77	31.008	Eq.	9,700	1,600		11,300	13,100
63 ton	"	.55	44.037	↓	15,300	2,300		17,600	20,300

64 Packaged Water Chillers

64.13 – Absorption Water Chillers

13.16 Indirect-Fired Absorption Water Chillers

INDIRECT-FIRED ABSORPTION WATER CHILLERS									
Steam or hot water, water cooled									
100 ton	Q-7	.13	240	Eq.	125,000	12,700		137,700	156,500
420 ton	"	.10	323	"	347,000	17,100		364,100	407,500

64.16 – Centrifugal Water Chillers

16.10 Centrifugal Type Water Chillers

CENTRIFUGAL TYPE WATER CHILLERS, With standard controls									
Centrifugal liquid chiller, water cooled									
not including water tower									
2000 ton (twin 1000 ton units)	Q-7	.07	477	Eq.	865,500	25,300		890,800	990,000

64.19 – Reciprocating Water Chillers

19.10 Reciprocating Type Water Chillers

RECIPROCATING TYPE WATER CHILLERS, With standard controls									
Water chillers, integral air cooled condenser									
100 ton cooling	Q-7	.25	129	Eq.	71,500	6,850		78,350	89,000
Water cooled, multiple compressor, semi-hermetic, tower not incl.									
15 ton cooling	Q-6	.36	65.934	Eq.	17,500	3,425		20,925	24,500
25 ton cooling	Q-7	.41	78.049	↓	18,900	4,150		23,050	27,100
35 ton cooling	↓	.31	101	↓	22,600	5,400		28,000	33,000
50 ton cooling	↓	.28	113	↓	32,300	6,050		38,350	44,600
100 ton cooling	↓	.18	179	↓	58,500	9,525		68,025	79,000
125 ton cooling	↓	.16	196	↓	66,500	10,400		76,900	88,500
145 ton cooling	↓	.16	202	↓	77,500	10,700		88,200	101,500
Water cooled, dual compressors, semi-hermetic, tower not incl.									
80 ton cooling	Q-7	.14	222	Eq.	28,800	11,800		40,600	49,400
100 ton cooling	↓	.14	228	↓	38,800	12,100		50,900	61,000
120 ton cooling	↓	.14	231	↓	47,100	12,300		59,400	70,500

64.23 – Scroll Water Chillers

23.10 Scroll Water Chillers

SCROLL WATER CHILLERS, With standard controls									
Packaged w/integral air cooled condenser, 15 ton cool	Q-7	.37	86.486	Eq.	20,400	4,575		24,975	29,400
20 ton cooling	↓	.34	94.118	↓	26,400	5,000		31,400	36,500
40 ton cooling	↓	.30	108	↓	34,100	5,725		39,825	46,200
Scroll water cooled, single compressor, hermetic, tower not incl.									
2 ton cooling	Q-5	.57	28.070	Eq.	3,400	1,400		4,800	5,850
5 ton cooling	↓	.57	28.070	↓	4,050	1,400		5,450	6,575
8 ton cooling	↓	.31	52.117	↓	5,575	2,625		8,200	10,100
10 ton cooling	Q-6	.36	67.039	↓	6,425	3,475		9,900	12,300
20 ton cooling	Q-7	.38	83.990	↓	11,500	4,450		15,950	19,300
30 ton cooling	"	.33	96.096	↓	12,900	5,100		18,000	21,800

23 64 Packaged Water Chillers

23 64 26 – Rotary-Screw Water Chillers

23 64 26.10 Rotary-Screw Type Water Chillers				Daily Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	
									Labor	Equipment		
0010	ROTARY-SCREW TYPE WATER CHILLERS, With standard controls											
0110	Screw, liquid chiller, air cooled, insulated evaporator											
0120	130 ton			Q-7	.14	228	Eq.	86,500	12,100		98,600	11
0124	160 ton				.13	246		106,500	13,100		119,600	11
0128	180 ton				.13	250		119,500	13,300		132,800	11
0132	210 ton				.12	258		132,000	13,700		145,700	11
0136	270 ton				.12	266		150,500	14,100		164,600	11
0140	320 ton			▼	.12	275	▼	189,000	14,600		203,600	23
0200	Packaged unit, water cooled, not incl. tower											
0210	80 ton			Q-7	.14	223	Eq.	43,400	11,900		55,300	6
0240	200 ton				.13	251		82,000	13,400		95,400	11
0270	350 ton			▼	.12	275	▼	162,000	14,600		176,600	20
1450	Water cooled, tower not included											
1580	150 ton cooling, screw compressors			Q-7	.13	240	Eq.	67,000	12,800		79,800	9
1620	200 ton cooling, screw compressors				.13	250		92,000	13,300		105,300	12
1660	291 ton cooling, screw compressors			▼	.12	260	▼	96,000	13,800		109,800	10

23 65 Cooling Towers

23 65 13 – Forced-Draft Cooling Towers

23 65 13.10 Forced-Draft Type Cooling Towers

0010	FORCED-DRAFT TYPE COOLING TOWERS, Packaged units											
0070	Galvanized steel											
0080	Induced draft, crossflow											
0100	Vertical, belt drive, 61 tons			Q-6	90	.267	TonAC	197	13.85		210.85	
0150	100 ton				100	.240		190	12.50		202.50	
0200	115 ton				109	.220		165	11.45		176.45	
0250	131 ton				120	.200		198	10.40		208.40	
0260	162 ton			▼	132	.182	▼	160	9.45		169.45	
1500	Induced air, double flow											
1900	Vertical, gear drive, 167 ton			Q-6	126	.190	TonAC	156	9.90		165.90	
2000	297 ton				129	.186		96	9.65		105.65	
2100	582 ton				132	.182		53.50	9.45		62.95	
2150	849 ton				142	.169		72	8.80		80.80	
2200	1016 ton			▼	150	.160	▼	72.50	8.30		80.80	
3000	For higher capacities, use multiples											
3500	For pumps and piping, add			Q-6	38	.632	TonAC	98.50	33		131.50	
4000	For absorption systems, add						"	75%	75%			
5000	Fiberglass tower on galvanized steel support structure											
5010	Draw thru											
5100	100 ton			Q-6	1.40	17.143	Eq.	10,100	890		10,990	12
5120	120 ton				1.20	20		11,700	1,050		12,750	14
5140	140 ton				1	24		12,700	1,250		13,950	15
5160	160 ton				.80	30		14,100	1,550		15,650	17
5180	180 ton				.65	36.923		16,000	1,925		17,925	20
5200	200 ton			▼	.48	50	▼	18,100	2,600		20,700	23
5300	For stainless steel support structure, add											
5360	For higher capacities, use multiples of each size											
6000	Stainless steel											
6010	Induced draft, crossflow, horizontal, belt drive											
6100	57 ton			Q-6	1.50	16	Eq.	25,300	830		26,130	29

65 Cooling Towers

5 13 – Forced-Draft Cooling Towers

13.10 Forced-Draft Type Cooling Towers	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
91 ton	Q-6	.99	24.242	Ea.	30,600	1,250		31,850	35,500
111 ton		.43	55.814		38,900	2,900		41,800	47,100
126 ton	↓	.22	109	↓	38,900	5,675		44,575	51,500

73 Indoor Central-Station Air-Handling Units

3 13 – Modular Indoor Central-Station Air-Handling Units

13.10 Air Handling Units

AIR HANDLING UNITS, Built-Up									
With cooling/heating coil section, filters, mixing box									
Single zone, horizontal/vertical									
Constant volume									
1600 CFM	Q-5	1.20	13.333	Ea.	3,425	670		4,095	4,775
5000 CFM	Q-6	1.40	17.143		8,925	890		9,815	11,200
11,500 CFM		1	24		18,100	1,250		19,350	21,800
22,000 CFM		.60	40		34,600	2,075		36,675	41,200
40,000 CFM	↓	.30	80		53,000	4,150		57,150	65,000
60,000 CFM	Q-7	.18	177	↓	75,000	9,425		84,425	96,000

3 39 – Indoor, Direct Gas-Fired Heating and Ventilating Units

39.10 Make-Up Air Unit

MAKE-UP AIR UNIT									
Indoor suspension, natural/LP gas, direct fired,									
standard control. For flue see Section 23 51 23.10									
70°F temperature rise, MBH is input									
75 MBH input	Q-6	3.60	6.667	Ea.	2,400	345		2,745	3,175
150 MBH input		3	8		2,850	415		3,265	3,750
225 MBH input		2.40	10		3,300	520		3,820	4,400
400 MBH input	↓	1.60	15		7,450	780		8,230	9,350
For discharge louver assembly, add					5%				
For filters, add					10%				
For air shut-off damper section, add					30%				

74 Packaged Outdoor HVAC Equipment

4 33 – Dedicated Outdoor-Air Units

33.10 Roof Top Air Conditioners

ROOF TOP AIR CONDITIONERS, Standard controls, curb, economizer									
Single zone, electric cool, gas heat									
3 ton cooling, 60 MBH heating	R236000-20	Q-5	.70	22.857	Ea.	3,600	1,150	4,750	5,675
4 ton cooling, 95 MBH heating			.61	26.403		4,250	1,325	5,575	6,675
5 ton cooling, 112 MBH heating			.56	28.521		4,975	1,425	6,400	7,625
6 ton cooling, 140 MBH heating			.52	30.769		5,825	1,550	7,375	8,750
7.5 ton cooling, 170 MBH heating		↓	.50	32.258		7,650	1,625	9,275	10,900
10 ton cooling, 200 MBH heating		Q-6	.67	35.982		10,600	1,875	12,475	14,400
12.5 ton cooling, 230 MBH heating			.63	37.975		13,400	1,975	15,375	17,700
17.5 ton cooling, 330 MBH heating		↓	.52	45.889		18,800	2,375	21,175	24,300
20 ton cooling, 360 MBH heating		Q-7	.67	47.976		21,900	2,550	24,450	28,000
25 ton cooling, 450 MBH heating			.56	57.554		25,000	3,050	28,050	32,100
30 ton cooling, 540 MBH heating			.47	68.376		25,500	3,625	29,125	33,600
40 ton cooling, 675 MBH heating		↓	.35	91.168	↓	33,400	4,825	38,225	44,000
Multizone, electric cool, gas heat, economizer									

23 74 Packaged Outdoor HVAC Equipment

23 74 33 – Dedicated Outdoor-Air Units

23 74 33.10 Roof Top Air Conditioners		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	To
2100	15 ton cooling, 360 MBH heating	Q-7	.61	52.545	EO.	59,500	2,775		62,275	
2120	20 ton cooling, 360 MBH heating		.53	60.038		64,000	3,175		67,175	
2200	40 ton cooling, 540 MBH heating		.28	113		112,500	6,050		118,550	
2210	50 ton cooling, 540 MBH heating		.23	142		140,000	7,550		147,550	
2220	70 ton cooling, 1500 MBH heating		.16	198		151,500	10,500		162,000	
2240	80 ton cooling, 1500 MBH heating		.14	228		173,000	12,100		185,100	
2260	90 ton cooling, 1500 MBH heating		.13	256		181,500	13,600		195,100	
2280	105 ton cooling, 1500 MBH heating		.11	290		200,000	15,400		215,400	
2400	For hot water heat coil, deduct					5%				
2500	For steam heat coil, deduct					2%				
2600	For electric heat, deduct					3%	5%			

23 81 Decentralized Unitary HVAC Equipment

23 81 13 – Packaged Terminal Air-Conditioners

23 81 13.10 Packaged Cabinet Type Air-Conditioners

0010	PACKAGED CABINET TYPE AIR-CONDITIONERS. Cabinet, wall sleeve,									
0100	louver, electric heat, thermostat, manual changeover, 208 V									
0200	6,000 BTUH cooling, 8800 BTU heat	Q-5	6	2.667	EO.	720	134		854	
0220	9,000 BTUH cooling, 13,900 BTU heat		5	3.200		785	160		945	
0240	12,000 BTUH cooling, 13,900 BTU heat		4	4		850	201		1,051	
0260	15,000 BTUH cooling, 13,900 BTU heat		3	5.333		1,050	267		1,317	
0500	For hot water coil, increase heat by 10%, odd					5%	10%			
1000	For steam, increase heat output by 30%, odd					8%	10%			

23 81 19 – Self-Contained Air-Conditioners

23 81 19.20 Self-Contained Single Package

0010	SELF-CONTAINED SINGLE PACKAGE									
0100	Air cooled, for free blow or duct, not incl. remote condenser									
0200	3 ton cooling	Q-5	1	16	EO.	3,475	800		4,275	
0220	5 ton cooling	Q-6	1.20	20		4,150	1,050		5,200	
0240	10 ton cooling	Q-7	1	32		7,000	1,700		8,700	
0260	20 ton cooling		.90	35.556		15,600	1,875		17,475	
0280	30 ton cooling		.80	40		23,600	2,125		25,725	
0340	60 ton cooling	Q-8	.40	80		53,500	4,250	92	57,842	
0490	For duct mounting no price change									
0500	For steam heating coils, odd				EO.	10%	10%			
1000	Water cooled for free blow or duct, not including tower									
1010	Constant volume									
1100	3 ton cooling	Q-6	1	24	EO.	3,475	1,250		4,725	
1120	5 ton cooling	"	1	24		4,550	1,250		5,800	
1140	10 ton cooling	Q-7	.90	35.556		8,550	1,875		10,425	
1160	20 ton cooling		.80	40		26,800	2,125		28,925	
1180	30 ton cooling		.70	45.714		35,500	2,425		37,925	

23 81 23 – Computer-Room Air-Conditioners

23 81 23.10 Computer Room Units

0010	COMPUTER ROOM UNITS									
1000	Air cooled, includes remote condenser but not									
1020	interconnecting tubing or refrigerant									
1080	3 ton	Q-5	.50	32	EO.	17,800	1,600		19,400	
1120	5 ton		.45	35.556		19,100	1,775		20,875	
1160	6 ton		.30	53.333		33,600	2,675		36,275	

81 Decentralized Unitary HVAC Equipment

1 23 – Computer-Room Air-Conditioners

23.10 Computer Room Units	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
8 ton	Q-5	.27	59.259	Eo.	35,600	2,975		38,575	43,700
10 ton		.25	64		37,200	3,200		40,400	45,800
12 ton		.24	66.667		38,600	3,350		41,950	47,500
15 ton		.22	72.727		40,900	3,650		44,550	50,500
18 ton		.20	80		46,600	4,000		50,600	57,000
20 ton	Q-6	.26	92.308		49,000	4,800		53,800	61,000
22 ton		.24	100		49,700	5,200		54,900	62,500
30 ton		.21	114		61,000	5,950		66,950	76,000
Chilled water, for connection to existing chiller system of adequate capacity									
5 ton	Q-5	.74	21.622	Eo.	13,600	1,075		14,675	16,600

1 43 – Air-Source Unitary Heat Pumps

43.10 Air-Source Heat Pumps	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
AIR-SOURCE HEAT PUMPS, Not including interconnecting tubing									
Air to air, split system, not including curbs, pods, fan coil and ductwork									
Outside condensing unit only, for fan coil see Section 23 82 19.10									
2 ton cooling, 8.5 MBH heat @ 0°F	Q-5	2	8	Eo.	2,125	400		2,525	2,925
5 ton cooling, 27 MBH heat @ 0°F		.50	32		3,425	1,600		5,025	6,200
7.5 ton cooling, 33 MBH heat @ 0°F		.45	35.556		5,925	1,775		7,700	9,200
10 ton cooling, 50 MBH heat @ 0°F	Q-6	.64	37.500		8,250	1,950		10,200	12,000
15 ton cooling, 64 MBH heat @ 0°F		.50	48		12,200	2,500		14,700	17,200
20 ton cooling, 85 MBH heat @ 0°F		.35	68.571		16,000	3,575		19,575	23,000
25 ton cooling, 119 MBH heat @ 0°F		.25	96		19,300	5,000		24,300	28,700
Single package, not including curbs, pods, or plenums									
2 ton cooling, 6.5 MBH heat @ 0°F	Q-5	1.50	10.667	Eo.	2,750	535		3,285	3,825
4 ton cooling, 13 MBH heat @ 0°F		.96	16.667		3,850	835		4,685	5,500
7.5 ton cooling, 35 MBH heat @ 0°F		.40	40		6,850	2,000		8,850	10,600

1 46 – Water-Source Unitary Heat Pumps

46.10 Water Source Heat Pumps	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
WATER SOURCE HEAT PUMPS, Not incl. connecting tubing or water source									
Water source to air, single package									
1 ton cooling, 13 MBH heat @ 75°F	Q-5	2	8	Eo.	1,700	400		2,100	2,450
2 ton cooling, 19 MBH heat @ 75°F		1.70	9.412		1,875	470		2,345	2,775
5 ton cooling, 29 MBH heat @ 75°F		.90	17.778		2,825	890		3,715	4,450
For supplementary heat coil, add					10%				
For increase in capacity thru use of solar collector, size boiler at 60%									

82 Convection Heating and Cooling Units

2 16 – Air Coils

16.10 Flanged Coils	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
FLANGED COILS									
Chilled water cooling, 6 rows, 24" x 48"	Q-5	3.20	5	Eo.	3,850	251		4,101	4,600
Direct expansion cooling, 6 rows, 24" x 48"		2.80	5.714		4,175	286		4,461	5,025
Hot water heating, 1 row, 24" x 48"		4	4		1,525	201		1,726	2,000
Steam heating, 1 row, 24" x 48"		3.06	5.229		2,175	262		2,437	2,800

2 16.20 Duct Heaters

DUCT HEATERS, Electric, 480 V, 3 Ph.	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Finned tubular insert, 500°F									
8" wide x 6" high, 4.0 kW	Q-20	16	1.250	Eo.	740	60		800	905

23 82 Convection Heating and Cooling Units

23 82 16 – Air Coils

23 82 16.20 Duct Heaters

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	To Incl
0120	12" high, 8.0 kW	Q-20	15	1.333	Eq.	1,225	64		1,289	1.1
0140	18" high, 12.0 kW		14	1.429		1,725	68.50		1,793.50	2.0
0160	24" high, 16.0 kW		13	1.538		2,225	73.50		2,298.50	2.5
0180	30" high, 20.0 kW		12	1.667		2,700	80		2,780	3.0
0300	12" wide x 6" high, 6.7 kW		15	1.333		785	64		849	1.0
0360	24" high, 26.7 kW		12	1.667		2,275	80		2,355	2.0
0700	24" wide x 6" high, 17.8 kW		13	1.538		935	73.50		1,008.50	1.1
0760	24" high, 71.1 kW	▼	10	2	▼	2,850	95.50		2,945.50	3.0
8000	To obtain BTU multiply kW by 3413									

23 82 19 – Fan Coil Units

23 82 19.10 Fan Coil Air Conditioning

0010	FAN COIL AIR CONDITIONING Cabinet mounted, filters, controls									
0100	Chilled water, 1/2 ton cooling	Q-5	8	2	Eq.	710	100		810	9.0
0120	1 ton cooling		6	2.667		815	134		949	1.1
0140	1.5 ton cooling		5.50	2.909		920	146		1,066	1.2
0150	2 ton cooling		5.25	3.048		1,150	153		1,303	1.5
0180	3 ton cooling	▼	4	4	▼	1,725	201		1,926	2.2
0262	For hot water coil, add					40%	10%			
0940	Direct expansion, for use w/air cooled condensing unit, 1.5 ton cooling	Q-5	5	3.200	Eq.	690	160		850	1.0
1000	5 ton cooling	"	3	5.333		1,325	267		1,592	1.6
1040	10 ton cooling	Q-6	2.60	9.231		2,975	480		3,455	4.0
1060	20 ton cooling	"	.70	34.286	▼	5,575	1,775		7,350	8.0

23 82 19.20 Heating and Ventilating Units

0010	HEATING AND VENTILATING UNITS , Classroom units									
0020	Includes filter, heating/cooling coils, standard controls									
0080	750 CFM, 2 tons cooling	Q-6	2	12	Eq.	3,900	625		4,525	5.0
0120	1250 CFM, 3 tons cooling		1.40	17.143		4,750	890		5,640	6.0
0140	1500 CFM, 4 tons cooling	▼	.80	30	▼	5,100	1,550		6,650	7.0
0500	For electric heat, add					35%				
1000	For no cooling, deduct				▼	25%	10%			

23 82 27 – Infrared Units

23 82 27.10 Infrared Type Heating Units

0010	INFRARED TYPE HEATING UNITS									
0020	Gas fired, unvented, electric ignition, 100% shutoff.									
0030	Piping and wiring not included									
0060	Input, 15 MBH	Q-5	7	2.286	Eq.	520	115		635	1.0
0120	45 MBH		5	3.200		1,500	160		1,660	1.5
0160	60 MBH		4	4		1,600	201		1,801	2.0
0240	120 MBH	▼	2	8	▼	1,975	400		2,375	2.5

23 82 29 – Radiators

23 82 29.10 Hydronic Heating

0010	HYDRONIC HEATING , Terminal units, not incl. main supply pipe									
1000	Radiation									
1100	Panel, baseboard, C.I., including supports, no covers	Q-5	46	.348	L.F.	35.50	17.45		52.95	
3000	Radiators, cast iron									
3100	Free standing or wall hung, 6 tube, 25" high	Q-5	96	.167	Section	37.50	8.35		45.85	
3200	4 tube, 19" high	"	96	.167	"	26	8.35		34.35	
3250	Adj. brackets, 2 per wall radiator up to 30 sections	1 Stpi	32	.250	Eq.	36.50	13.95		50.45	
9500	To convert SFR to BTU rating: Hot water, 150 x SFR									
9510	Forced hot water, 180 x SFR; steam, 240 x SFR									

82 Convection Heating and Cooling Units

23.2 33 - Convectors

23.2 33.10 Convector Units		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
CONVECTOR UNITS, Terminal units, not incl. main supply pipe							Labor	Equipment		
Convector, multifin, 2 pipe w/cabinet										
	17" H x 24" L	Q-5	10	1.600	Eq.	99.50	80		179.50	231
	17" H x 36" L			8.60	1.860	149	93.50		242.50	305
	17" H x 48" L			7.40	2.162	199	108		307	380
	21" H x 24" L			9	1.778	99.50	89		188.50	244
	21" H x 36" L			8.20	1.951	149	98		247	310
	21" H x 48" L			6.80	2.353	199	118		317	395
For knob operated damper, odd						140%				
For metal trim strips, odd		Q-5	64	.250	Eq.	19.25	12.55		31.80	40
For snap-on inlet grille, odd						10%	10%			
For hinged access door, odd		Q-5	64	.250	Eq.	35.50	12.55		48.05	58
For air chamber, auto-venting, odd		"	58	.276	"	6.85	13.85		20.70	28.50

23.2 36 - Finned-Tube Radiation Heaters

23.2 36.10 Finned Tube Radiation										
FINNED TUBE RADIATION, Terminal units, not incl. main supply pipe										
Fin tube, wall hung, 14" slope top cover, with damper										
	1-1/4" copper tube, 4-1/4" alum. fin	Q-5	38	.421	L.F.	42.50	21		63.50	78.50
	1-1/4" steel tube, 4-1/4" steel fin	"	36	.444	"	39	22.50		61.50	76.50
Note: fin tube may also require corners, caps, etc.										

23.2 39 - Unit Heaters

23.2 39.16 Propeller Unit Heaters										
PROPELLER UNIT HEATERS										
Unit heaters, propeller, 115 V 2 psi steam, 60°F entering air										
Horizontal, 12 MBH		Q-5	12	1.333	Eq.	345	67		412	480
	43.9 MBH			8	2	520	100		620	725
	96.8 MBH			6	2.667	760	134		894	1,025
	157.6 MBH			4	4	1,000	201		1,201	1,400
	286.9 MBH			2	8	1,575	400		1,975	2,325
	326.0 MBH			1.90	8.421	1,825	420		2,245	2,625
	364 MBH			1.80	8.889	1,975	445		2,420	2,850
	404 MBH			1.60	10	2,500	500		3,000	3,500
For vertical diffuser, odd						174			174	191
Vertical flow, 40 MBH		Q-5	11	1.455		735	73		808	920
	58.5 MBH			8	2	765	100		865	990
	131.0 MBH			4	4	1,150	201		1,351	1,575
	297.0 MBH			1.80	8.889	2,200	445		2,645	3,100
	420 MBH, (460 V)	Q-6	1.80	13.333		3,375	695		4,070	4,775
	500 MBH, (460 V)			1.71	14.035	4,700	730		5,430	6,275
	570 MBH, (460 V)			1.40	17.143	5,975	890		6,865	7,925
	620 MBH, (460 V)			1.30	18.462	6,525	960		7,485	8,625
	960 MBH, (460 V)			1.10	21.818	7,200	1,125		8,325	9,600

23 83 Radiant Heating Units

23 83 16 – Radiant-Heating Hydronic Piping

23 83 16.10 Radiant Floor Heating

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	
							Labor	Equipment		
0010	RADIANT FLOOR HEATING									
0100	Tubing, PEX (cross-linked polyethylene)									
0110	Oxygen barrier type for systems with ferrous materials									
0120	1/2"	Q-5	800	.020	L.F.	.99	1		1.99	
0130	3/4"		535	.030		1.40	1.50		2.90	
0140	1"	▼	400	.040	▼	2.19	2.01		4.20	
0200	Non barrier type for ferrous free systems									
0210	1/2"	Q-5	800	.020	L.F.	.57	1		1.57	
0220	3/4"		535	.030		1.05	1.50		2.55	
0230	1"	▼	400	.040	▼	1.80	2.01		3.81	
1000	Manifolds									
1110	Brass									
1120	With supply and return valves, flow meter, thermometer, auto air vent and drain/fill valve.									
1122										
1130	1", 2 circuit	Q-5	14	1.143	Ea.	245	57.50		302.50	
1140	1", 3 circuit		13.50	1.185		280	59.50		339.50	
1150	1", 4 circuit		13	1.231		305	61.50		366.50	
1154	1", 5 circuit		12.50	1.280		365	64		429	
1158	1", 6 circuit		12	1.333		395	67		462	
1162	1", 7 circuit		11.50	1.391		430	70		500	
1166	1", 8 circuit		11	1.455		480	73		553	
1172	1", 9 circuit		10.50	1.524		515	76.50		591.50	
1174	1", 10 circuit		10	1.600		555	80		635	
1178	1", 11 circuit		9.50	1.684		575	84.50		659.50	
1182	1", 12 circuit	▼	9	1.778	▼	635	89		724	
1610	Copper manifold header, (cut to size)									
1620	1" header, 12 – 1/2" sweat outlets	Q-5	3.33	4.805	Ea.	91	241		332	
1630	1-1/4" header, 12 – 1/2" sweat outlets		3.20	5		106	251		357	
1640	1-1/4" header, 12 – 3/4" sweat outlets		3	5.333		114	267		381	
1650	1-1/2" header, 12 – 3/4" sweat outlets		3.10	5.161		139	259		398	
1660	2" header, 12 – 3/4" sweat outlets	▼	2.90	5.517	▼	201	277		478	
3000	Valves									
3110	Thermostatic zone valve actuator with end switch	Q-5	40	.400	Ea.	36.50	20		56.50	
3114	Thermostatic zone valve actuator	"	36	.444	"	81	22.50		103.50	
3120	Motorized straight zone valve with operator complete									
3130	3/4"	Q-5	35	.457	Ea.	125	23		148	
3140	1"	▼	32	.500	▼	137	25		162	
3150	1-1/4"	▼	29.60	.541	▼	165	27		192	
3500	4 Way mixing valve, manual, brass									
3530	1"	Q-5	13.30	1.203	Ea.	126	60.50		186.50	
3540	1-1/4"		11.40	1.404		137	70.50		207.50	
3550	1-1/2"		11	1.455		203	73		276	
3560	2"		10.60	1.509		288	75.50		363.50	
3800	Mixing valve motor, 4 way for valves, 1" and 1-1/4"		34	.471		310	23.50		333.50	
3810	Mixing valve motor, 4 way for valves, 1-1/2" and 2"	▼	30	.533	▼	355	26.50		381.50	
5000	Radiant floor heating, zone control panel									
5120	4 Zone actuator valve control, expandable	Q-5	20	.800	Ea.	163	40		203	
5130	6 Zone actuator valve control, expandable		18	.889		199	44.50		243.50	
6070	Thermal track, straight panel for long continuous runs, 5.333 S.F.		40	.400		20	20		40	
6080	Thermal track, utility panel, for direction reverse at run end, 5.333 S.F.		40	.400		20	20		40	
6090	Combination panel, for direction reverse plus straight run, 5.333 S.F.	▼	40	.400	▼	20	20		40	
7000	PEX tubing fittings									
7100	Compression type									

83 Radiant Heating Units

83.16 – Radiant-Heating Hydronic Piping

83.16.10 Radiant Floor Heating	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Coupling									
1/2" x 1/2"	1 Stpi	27	.296	Eq.	6.40	16.50		22.90	32
3/4" x 3/4"	"	23	.348	"	10.60	19.35		29.95	40.50
Adapter									
1/2" x female sweat 1/2"	1 Stpi	27	.296	Eq.	4.33	16.50		20.83	30
1/2" x female sweat 3/4"		26	.308		4.88	17.15		22.03	31.50
5/8" x female sweat 3/4"		24	.333		7	18.55		25.55	35.50
Elbow									
1/2" x female sweat 1/2"	1 Stpi	27	.296	Eq.	6.65	16.50		23.15	32.50
1/2" x female sweat 3/4"		26	.308		7.80	17.15		24.95	34.50
5/8" x female sweat 3/4"		24	.333		8.75	18.55		27.30	37.50
Insert type									
PEX x male NPT									
1/2" x 1/2"	1 Stpi	29	.276	Eq.	2.48	15.35		17.83	25.50
3/4" x 3/4"		27	.296		3.67	16.50		20.17	29
1" x 1"		26	.308		6.05	17.15		23.20	32.50
PEX coupling									
1/2" x 1/2"	1 Stpi	30	.267	Eq.	.94	14.85		15.79	23.50
3/4" x 3/4"		29	.276		1.17	15.35		16.52	24.50
1" x 1"		28	.286		2.20	15.90		18.10	26.50
PEX stainless crimp ring									
1/2" x 1/2"	1 Stpi	86	.093	Eq.	.34	5.20		5.54	8.15
3/4" x 3/4"		84	.095		.47	5.30		5.77	8.50
1" x 1"		82	.098		.68	5.45		6.13	8.95

83.33 – Electric Radiant Heaters

83.33.10 Electric Heating

ELECTRIC HEATING, not incl. conduit or feed wiring									
Rule of thumb: Baseboard units, including control	1 Elec	4.40	1.818	kW	98	93.50		191.50	248
Baseboard heaters, 2' long, 375 watt		8	1	Eq.	40	51.50		91.50	121
3' long, 500 watt		8	1		46	51.50		97.50	128
4' long, 750 watt		6.70	1.194		64	61.50		125.50	163
5' long, 935 watt		5.70	1.404		68	72.50		140.50	183
6' long, 1125 watt		5	1.600		74	82.50		156.50	205
8' long, 1500 watt		4	2		92	103		195	255
Wall heaters with fan, 120 to 277 volt									
Thermostats, integral	1 Elec	16	.500	Eq.	30	26		56	71.50
Line voltage, 1 pole	"	8	1	"	31	51.50		82.50	111

84 Humidity Control Equipment

84.13 – Humidifiers

84.13.10 Humidifier Units

HUMIDIFIER UNITS									
Steam, room or duct, filter, regulators, auto. controls, 220 V									
11 lb. per hour	Q-5	6	2.667	Eq.	2,450	134		2,584	2,900
22 lb. per hour		5	3.200		2,700	160		2,860	3,225
33 lb. per hour		4	4		2,775	201		2,976	3,350
50 lb. per hour		4	4		3,400	201		3,601	4,050
100 lb. per hour		3	5.333		4,075	267		4,342	4,875

Division Notes

[illegible]

Estimating Tips

26 05 00 Common Work Results for Electrical

Conduit should be taken off in three main categories—power distribution, branch power, and branch lighting—so the estimator can concentrate on systems and components, therefore making it easier to ensure all items have been accounted for.

For cost modifications for elevated conduit installation, use the percentages to labor according to the height of installation, and only to the quantities exceeding the different height levels, not to the total conduit quantities.

Remember that aluminum wiring of equal ampacity is larger in diameter than copper and may require larger conduit.

More than three wires at a time are being pulled, deduct percentages from the labor hours of that grouping of wires.

When taking off grounding systems, identify separately the type and size of wire, and list each unique type of ground connection.

- The estimator should take the weights of materials into consideration when completing a takeoff. Topics to consider include: How will the materials be supported? What methods of support are available? How high will the support structure have to reach? Will the final support structure be able to withstand the total burden? Is the support material included or separate from the fixture, equipment, and material specified?

- Do not overlook the costs for equipment used in the installation. If scaffolding or highlifts are available in the field, contractors may use them in lieu of the proposed ladders and rolling staging.

26 20 00 Low-Voltage Electrical Transmission

- Supports and concrete pads may be shown on drawings for the larger equipment, or the support system may be only a piece of plywood for the back of a panelboard. In either case, it must be included in the costs.

26 40 00 Electrical and Cathodic Protection

- When taking off cathodic protection systems, identify the type and size of cable, and list each unique type of anode connection.

26 50 00 Lighting

- Fixtures should be taken off room by room, using the fixture schedule, specifications, and the ceiling plan. For large concentrations of lighting fixtures in the same area, deduct the percentages from labor hours.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

Note: Trade Service, in part, has been used as a reference source for some of the material prices used in Division 26.

26 05 Common Work Results for Electrical

26 05 05 – Selective Electrical Demolition

26 05 05.10 Electrical Demolition		Daily Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total incl. 11
ELECTRICAL DEMOLITION							Labor	Equipment		
0010	ELECTRICAL DEMOLITION									
0020	Conduit to 15' high, including fittings & hangers									
0100	Rigid galvanized steel, 1/2" to 1" diameter	1 Elec	242	.033	L.F.		1.70			1.70
0120	1-1/4" to 2"	"	200	.040			2.06			2.06
0140	2-1/2" to 3-1/2"	2 Elec	302	.053			2.73			2.73
0160	4" to 6"	"	160	.100			5.15			5.15
0200	Electric metallic tubing (EMT), 1/2" to 1"	1 Elec	394	.020			1.05			1.05
0220	1-1/4" to 1-1/2"	"	326	.025			1.27			1.27
0260	3-1/2" to 4"	2 Elec	310	.052	▼		2.66			2.66
0270	Armored cable, (BX) avg. 50' runs									
0280	#14, 2 wire	1 Elec	690	.012	L.F.		.60			.60
0290	#14, 3 wire		571	.014			.72			.72
0300	#12, 2 wire		605	.013			.68			.68
0310	#12, 3 wire		514	.016			.80			.80
0320	#10, 2 wire		514	.016			.80			.80
0330	#10, 3 wire		425	.019			.97			.97
0340	#8, 3 wire	▼	342	.023	▼		1.21			1.21
0350	Non metallic sheathed cable (Romex)									
0360	#14, 2 wire	1 Elec	720	.011	L.F.		.57			.57
0370	#14, 3 wire		657	.012			.63			.63
0380	#12, 2 wire		629	.013			.66			.66
0390	#10, 3 wire	▼	450	.018	▼		.92			.92
0400	Wiremold raceway, including fittings & hangers									
0420	Na. 3000	1 Elec	250	.032	L.F.		1.65			1.65
0440	Na. 4000		217	.037			1.90			1.90
0460	Na. 6000		166	.048	▼		2.48			2.48
0465	Telephone/power pole		12	.667	Ea.		34.50			34.50
0470	Non-metallic, straight section	▼	480	.017	L.F.		.86			.86
0500	Channels, steel, including fittings & hangers									
0520	3/4" x 1-1/2"	1 Elec	308	.026	L.F.		1.34			1.34
0540	1-1/2" x 1-1/2"		269	.030			1.53			1.53
0560	1-1/2" x 1-7/8"	▼	229	.035	▼		1.80			1.80
0600	Copper bus duct, indoor, 3 phase									
0610	Including hangers & supports									
0620	225 amp	2 Elec	135	.119	L.F.		6.10			6.10
0640	400 amp		106	.151			7.80			7.80
0660	600 amp		86	.186			9.60			9.60
0680	1000 amp		60	.267			13.75			13.75
0700	1600 amp		40	.400			20.50			20.50
0720	3000 amp	▼	10	1.600	▼		82.50			82.50
1300	Transformer, dry type, 1 phase, incl. removal of									
1320	supports, wire & conduit terminations									
1340	1 kVA	1 Elec	7.70	1.039	Ea.		53.50			53.50
1420	75 kVA	2 Elec	2.50	6.400	"		330			330
1440	3 phase to 600V, primary									
1460	3 kVA	1 Elec	3.85	2.078	Ea.		107			107
1520	75 kVA	2 Elec	2.70	5.926			305			305
1550	300 kVA	R-3	1.80	11.111			565	73.50		638.50
1570	750 kVA	"	1.10	18.182	▼		925	120		1,045
1800	Wire, THW-THWN-THHN, removed from									
1810	in place conduit, to 15' high									
1830	#14	1 Elec	65	.123	C.L.F.		6.35			6.35
1840	#12	▼	55	.145	▼		7.50			7.50

05 Common Work Results for Electrical

05 05 – Selective Electrical Demolition

05.10 Electrical Demolition		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
#10	1 Elec	45.50	.176	C.L.F.		9.05			9.05	13.55
#8		40.40	.198			10.20			10.20	15.25
#6	▼	32.60	.245			12.65			12.65	18.90
#4	2 Elec	53	.302			15.55			15.55	23.50
#3		50	.320			16.50			16.50	24.50
#2		44.60	.359			18.50			18.50	27.50
1/0		33.20	.482			25			25	37
2/0		29.20	.548			28.50			28.50	42
3/0		25	.640			33			33	49.50
4/0		22	.727			37.50			37.50	56
250 kcmil		20	.800			41			41	61.50
300 kcmil		19	.842			43.50			43.50	65
350 kcmil		18	.889			46			46	68.50
400 kcmil		17	.941			48.50			48.50	72.50
500 kcmil	▼	16.20	.988	▼		51			51	76
Interior fluorescent fixtures, incl. supports & whips, to 15' high										
Recessed drop-in 2' x 2', 2 lamp	2 Elec	35	.457	Eq.		23.50			23.50	35
2' x 4', 2 lamp	▼	33	.485			25			25	37.50
2' x 4', 4 lamp		30	.533			27.50			27.50	41
4' x 4', 4 lamp	▼	20	.800	▼		41			41	61.50
Surface mount, acrylic lens & hinged frame										
1' x 4', 2 lamp	2 Elec	44	.364	Eq.		18.75			18.75	28
2' x 2', 2 lamp	▼	44	.364			18.75			18.75	28
2' x 4', 4 lamp		33	.485			25			25	37.50
4' x 4', 4 lamp	▼	23	.696	▼		36			36	53.50
Strip fixtures, surface mount										
4' long, 1 lamp	2 Elec	53	.302	Eq.		15.55			15.55	23.50
4' long, 2 lamp	▼	50	.320			16.50			16.50	24.50
8' long, 1 lamp		42	.381			19.65			19.65	29.50
8' long, 2 lamp	▼	40	.400	▼		20.50			20.50	31
Pendant mount, industrial, incl. removal of chain or rod hangers, to 15' high										
4' long, 2 lamp	2 Elec	35	.457	Eq.		23.50			23.50	35
8' long, 2 lamp	"	27	.593	"		30.50			30.50	45.50

05 13 – Medium-Voltage Cables

13.16 Medium-Voltage, Single Cable

MEDIUM-VOLTAGE, SINGLE CABLE Splicing & terminations not included										
Copper, XLP shielding, 5 kV, #6	2 Elec	4.40	3.636	C.L.F.	162	187			349	460
#4		4.40	3.636		210	187			397	510
#2		4	4		248	206			454	585
#1		4	4		285	206			491	625
1/0		3.80	4.211		315	217			532	670
2/0		3.60	4.444		395	229			624	775
4/0	▼	3.20	5		515	258			773	950
250 kcmil	3 Elec	4.50	5.333		635	275			910	1,100
350 kcmil		3.90	6.154		820	315			1,135	1,375
500 kcmil	▼	3.60	6.667		1,000	345			1,345	1,625
15 kV, ungrounded neutral, #1	2 Elec	4	4		345	206			551	690
1/0		3.80	4.211		415	217			632	780
2/0		3.60	4.444		470	229			699	860
4/0	▼	3.20	5	▼	625	258			883	1,075

26 05 Common Work Results for Electrical

26 05 13 - Medium-Voltage Cables

26 05 13.16 Medium-Voltage, Single Cable		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	To Unit
							Labor	Equipment		
2400	250 kcmil	3 Elec	4.50	5.333	C.L.F.	695	275		970	1.4
2600	350 kcmil		3.90	6.154		875	315		1,190	1.4
2800	500 kcmil		3.60	6.667		1,075	345		1,420	1.7

26 05 19 - Low-Voltage Electrical Power Conductors and Cables

26 05 19.20 Armored Cable

ARMORED CABLE										
0010										
0050	600 volt, copper (BX), #14, 2 conductor, solid	1 Elec	2.40	3.333	C.L.F.	71.50	172		243.50	1
0100	3 conductor, solid		2.20	3.636		111	187		298	3
0150	#12, 2 conductor, solid		2.30	3.478		72.50	179		251.50	4
0200	3 conductor, solid		2	4		117	206		323	4
0250	#10, 2 conductor, solid		2	4		133	206		339	4
0300	3 conductor, solid		1.60	5		184	258		442	4
0350	#8, 3 conductor, solid		1.30	6.154		345	315		660	8
0400	3 conductor with PVC jacket, in cable tray, #6		3.10	2.581		390	133		523	7
0450	#4	2 Elec	5.40	2.963		500	153		653	7
0500	#2		4.60	3.478		665	179		844	1.1
0550	#1		4	4		905	206		1,111	1.2
0600	1/0		3.60	4.444		1,075	229		1,304	1.5
0650	2/0		3.40	4.706		1,300	243		1,543	1.7
0700	3/0		3.20	5		1,500	258		1,758	2.0
0750	4/0		3	5.333		1,725	275		2,000	2.3
0800	250 kcmil	3 Elec	3.60	6.667		1,950	345		2,295	2.6
0850	350 kcmil		3.30	7.273		2,600	375		2,975	3.5
0900	500 kcmil		3	8		3,375	410		3,785	4.5
1050	5 kV, copper, 3 conductor with PVC jacket, non-shielded, in cable tray, #4	2 Elec	380	.042	L.F.	7.65	2.17		9.82	7
1100	#2		360	.044		10	2.29		12.29	7
1200	#1		300	.053		12.70	2.75		15.45	7
1400	1/0		290	.055		14.65	2.84		17.49	7
1600	2/0		260	.062		16.95	3.17		20.12	7
2000	4/0		240	.067		22.50	3.44		25.94	7
2100	250 kcmil	3 Elec	330	.073		31	3.75		34.75	7
2150	350 kcmil		315	.076		38	3.93		41.93	7
2200	500 kcmil		270	.089		50.50	4.58		55.08	7
2400	15 kV, copper, 3 conductor with PVC jacket galv steel armored									
2500	grounded neutral, in cable tray, #2	2 Elec	300	.053	L.F.	16.10	2.75		18.85	7
2600	#1		280	.057		17.15	2.95		20.10	7
2800	1/0		260	.062		19.75	3.17		22.92	7
2900	2/0		220	.073		26	3.75		29.75	7
3000	4/0		190	.084		29.50	4.34		33.84	7
3100	250 kcmil	3 Elec	270	.089		33	4.58		37.58	7
3150	350 kcmil		240	.100		39	5.15		44.15	7
3200	500 kcmil		210	.114		52	5.90		57.90	7
3400	15 kV, copper, 3 conductor with PVC jacket, ungrounded neutral, in cable tray, #2	2 Elec	260	.062	L.F.	17.35	3.17		20.52	7
3450			230	.070		19.25	3.59		22.84	7
3500	#1		200	.080		22	4.12		26.12	7
3600	1/0		190	.084		27	4.34		31.34	7
3700	2/0		160	.100		32.50	5.15		37.65	7
3800	4/0		210	.114		38	5.90		43.90	7
4000	250 kcmil	3 Elec	195	.123		50	6.35		56.35	7
4050	350 kcmil		180	.133		61	6.85		67.85	7
4100	500 kcmil									

05 Common Work Results for Electrical

15 19 – Low-Voltage Electrical Power Conductors and Cables

26	19.20 Armored Cable	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
600 volt, copper (MC) steel clad, #14, 2 wire	1 Elec	2.40	3.333	C.L.F.	72.50	172			244.50	335
3 wire		2.20	3.636		116	187			303	405
#12, 2 wire		2.30	3.478		73	179			252	350
3 wire		2	4		128	206			334	450
#10, 2 wire		2	4		158	206			364	485
3 wire		1.60	5		221	258			479	630
#8, 2 wire, stranded		1.80	4.444		296	229			525	665
3 wire, stranded		1.30	6.154		415	315			730	930
600 volt, copper (MC) aluminum clad, #14, 2 wire		2.65	3.019		72.50	156			228.50	315
3 wire		2.45	3.265		116	168			284	380
4 wire		2.20	3.636		161	187			348	455
#12, 2 wire		2.55	3.137		73	162			235	325
3 wire		2.20	3.636		128	187			315	420
4 wire		2	4		173	206			379	500
#10, 2 wire		2.20	3.636		158	187			345	455
3 wire		1.80	4.444		221	229			450	585
4 wire		1.55	5.161		345	266			611	780

26 19.35 Cable Terminations

CABLE TERMINATIONS										
Wire connectors, screw type, #22 to #14	1 Elec	260	.031	Eq.	.09	1.59			1.68	2.47
#18 to #12		240	.033		.11	1.72			1.83	2.69
#18 to #10		240	.033		.17	1.72			1.89	2.76
Screw-on connectors, insulated, #18 to #12		240	.033		.13	1.72			1.85	2.71
#16 to #10		230	.035		.18	1.79			1.97	2.88
#14 to #8		210	.038		.39	1.96			2.35	3.37
#12 to #6		180	.044		.64	2.29			2.93	4.12
Terminal lugs, solderless, #16 to #10		50	.160		.61	8.25			8.86	13
#8 to #4		30	.267		.94	13.75			14.69	21.50
#2 to #1		22	.364		1.26	18.75			20.01	29.50
1/0 to 2/0		16	.500		2.23	26			28.23	41
3/0		12	.667		4.31	34.50			38.81	56
4/0		11	.727		4.31	37.50			41.81	60.50
250 kcmil		9	.889		4.31	46			50.31	73
350 kcmil		7	1.143		5.50	59			64.50	94
500 kcmil		6	1.333		10.70	68.50			79.20	115
Crimp 1 hole lugs, copper or aluminum, 600 volt										
#14	1 Elec	60	.133	Eq.	.46	6.85			7.31	10.75
#12		50	.160		.63	8.25			8.88	13.05
#10		45	.178		.63	9.15			9.78	14.40
#8		36	.222		2.63	11.45			14.08	20
#6		30	.267		3.46	13.75			17.21	24.50
#4		27	.296		4.70	15.25			19.95	28
#2		24	.333		7.40	17.20			24.60	33.50
#1		20	.400		7.60	20.50			28.10	39.50
2/0		15	.533		9.45	27.50			36.95	51.50
3/0		12	.667		11.10	34.50			45.60	63.50
4/0		11	.727		12.35	37.50			49.85	69.50
250 kcmil		9	.889		14.55	46			60.55	84.50
300 kcmil		8	1		16.80	51.50			68.30	95.50
350 kcmil		7	1.143		17.25	59			76.25	107
400 kcmil		6.50	1.231		21	63.50			84.50	118
500 kcmil		6	1.333		24.50	68.50			93	130

26 05 Common Work Results for Electrical

26 05 19 – Low-Voltage Electrical Power Conductors and Cables

26 05 19.50 Mineral Insulated Cable		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	To Unit
							Labor	Equipment		
0010	MINERAL INSULATED CABLE 600 volt									
0100	1 conductor, #12	1 Elec	1.60	5	C.L.F.	385	258		643	
0200	#10		1.60	5		495	258		753	
0400	#8		1.50	5.333		550	275		825	
0500	#6		1.40	5.714		655	295		950	
0600	#4	2 Elec	2.40	6.667		880	345		1,225	
0800	#2		2.20	7.273		1,250	375		1,625	
0900	#1		2.10	7.619		1,425	395		1,820	
1000	1/0		2	8		1,675	410		2,085	
1100	2/0		1.90	8.421		2,000	435		2,435	
1200	3/0		1.80	8.889		2,400	460		2,860	
1400	4/0		1.60	10		2,775	515		3,290	
1410	250 kcmil	3 Elec	2.40	10		3,125	515		3,640	
1420	350 kcmil		1.95	12.308		3,575	635		4,210	
1430	500 kcmil		1.95	12.308		4,600	635		5,235	

26 05 19.55 Non-Metallic Sheathed Cable

0010	NON-METALLIC SHEATHED CABLE 600 volt									
0100	Copper with ground wire, (Romex)									
0150	#14, 2 conductor	1 Elec	2.70	2.963	C.L.F.	29.50	153		182.50	
0200	3 conductor		2.40	3.333		41	172		213	
0250	#12, 2 conductor		2.50	3.200		45	165		210	
0300	3 conductor		2.20	3.636		63	187		250	
0350	#10, 2 conductor		2.20	3.636		71	187		258	
0400	3 conductor		1.80	4.444		100	229		329	
0450	#8, 3 conductor		1.50	5.333		160	275		435	
0500	#6, 3 conductor		1.40	5.714		259	295		554	
0550	SE type SER aluminum cable, 3 RHW and									
0600	1 bare neutral, 3 #8 & 1 #8	1 Elec	1.60	5	C.L.F.	140	258		398	
0650	3 #6 & 1 #6	"	1.40	5.714		159	295		454	
0700	3 #4 & 1 #6	2 Elec	2.40	6.667		148	345		493	
0750	3 #2 & 1 #4		2.20	7.273		263	375		638	
0800	3 #1/0 & 1 #2		2	8		395	410		805	
0850	3 #2/0 & 1 #1		1.80	8.889		470	460		930	
0900	3 #4/0 & 1 #2/0		1.60	10		665	515		1,180	

26 05 19.90 Wire

0010	WIRE	R260519-92								
0020	600 volt, copper type THW, solid, #14		1 Elec	13	.615	C.L.F.	8.20	31.50		39.70
0030	#12			11	.727		12.40	37.50		49.90
0040	#10			10	.800		19.55	41		60.55
0050	Stranded, #14	R260533-22		13	.615		9.25	31.50		40.75
0100	#12			11	.727		14.20	37.50		51.70
0120	#10			10	.800		22.50	41		63.50
0140	#8			8	1		37	51.50		88.50
0160	#6			6.50	1.231		63	63.50		126.50
0180	#4		2 Elec	10.60	1.509		98.50	78		176.50
0200	#3			10	1.600		124	82.50		206.50
0220	#2			9	1.778		157	91.50		248.50
0240	#1			8	2		198	103		301
0260	1/0			6.60	2.424		247	125		372
0280	2/0			5.80	2.759		310	142		452
0300	3/0			5	3.200		390	165		555
0350	4/0			4.40	3.636		495	187		682

05 Common Work Results for Electrical

05 19 – Low-Voltage Electrical Power Conductors and Cables

265 19.90 Wire		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
	250 kcmil	3 Elec	6	4	C.L.F.	580	206		786	945
	300 kcmil		5.70	4.211		690	217		907	1,075
	350 kcmil		5.40	4.444		845	229		1,074	1,275
	400 kcmil		5.10	4.706		970	243		1,213	1,450
	500 kcmil		4.80	5		1,150	258		1,408	1,625
	600 volt, aluminum type THHN, stranded, #6	1 Elec	8	1		28	51.50		79.50	108
	#4	2 Elec	13	1.231		34.50	63.50		98	133
	#2		10.60	1.509		47	78		125	168
	#1		9	1.778		68.50	91.50		160	213
	1/0		8	2		82.50	103		185.50	245
	2/0		7.20	2.222		97.50	115		212.50	278
	3/0		6.60	2.424		121	125		246	320
	4/0		6.20	2.581		134	133		267	345
	250 kcmil	3 Elec	8.70	2.759		164	142		306	395
	300 kcmil		8.10	2.963		227	153		380	475
	350 kcmil		7.50	3.200		231	165		396	500
	400 kcmil		6.90	3.478		270	179		449	565
	500 kcmil		6	4		297	206		503	635
	600 kcmil		5.70	4.211		375	217		592	740
	700 kcmil		5.10	4.706		435	243		678	845
	750 kcmil		4.80	5		500	258		758	935
	600 volt, copper type THWN-THHN, solid, #14	1 Elec	13	.615		8.20	31.50		39.70	56.50
	#12		11	.727		12.40	37.50		49.90	69.50
	#10		10	.800		19.55	41		60.55	83
	Stranded, #14		13	.615		9.35	31.50		40.85	58
	#12		11	.727		14.35	37.50		51.85	72
	#10		10	.800		22	41		63	86
	#8		8	1		33.50	51.50		85	114
	#6		6.50	1.231		57.50	63.50		121	158
	#4	2 Elec	10.60	1.509		90	78		168	215

05 23 – Control-Voltage Electrical Power Cables

265 23.10 Control Cable

CONTROL CABLE										
	600 volt, copper, #14 THWN wire with PVC jacket, 2 wires	1 Elec	9	.889	C.L.F.	23	46		69	94
	4 wires		7	1.143		39.50	59		98.50	132
	6 wires		6	1.333		74.50	68.50		143	185
	8 wires		5.30	1.509		91	78		169	216
	10 wires		4.80	1.667		107	86		193	246
	12 wires		4.30	1.860		125	96		221	281
	14 wires		3.80	2.105		149	109		258	325
	16 wires		3.50	2.286		153	118		271	345
	18 wires		3.30	2.424		169	125		294	375
	20 wires		3	2.667		206	137		343	430
	22 wires		2.80	2.857		212	147		359	455

05 26 – Grounding and Bonding for Electrical Systems

265 26.80 Grounding

GROUNDING										
	Rod, copper clad, 8' long, 1/2" diameter	1 Elec	5.50	1.455	Eq.	18	75		93	132
	3/4" diameter		5.30	1.509		32.50	78		110.50	152
	10' long, 1/2" diameter		4.80	1.667		21.50	86		107.50	152
	3/4" diameter		4.40	1.818		38.50	93.50		132	183
	15' long, 3/4" diameter		4	2		83.50	103		186.50	246

26 05 Common Work Results for Electrical

26 05 26 – Grounding and Bonding for Electrical Systems

26 05 26.80 Grounding		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	To Incl.
							Labor	Equipment		
0390	Bare copper wire, stranded, #8	1 Elec	11	.727	C.L.F.	32	37.50		69.50	
0400	#6	↓	10	.800		56.50	41		97.50	
0600	#2	2 Elec	10	1.600		151	82.50		233.50	
0800	3/0	↓	6.60	2.424		335	125		460	
1000	4/0	↓	5.70	2.807		420	145		565	
1200	250 kcmil	3 Elec	7.20	3.333	↓	500	172		672	
1800	Water pipe ground clamps, heavy duty									
2000	Brnze, 1/2" to 1" diameter	1 Elec	8	1	Eq.	29.50	51.50		81	
2100	1-1/4" to 2" diameter		8	1		38.50	51.50		90	
2200	2-1/2" to 3" diameter		6	1.333		67.50	68.50		136	
2800	Brazed connections, #6 wire		12	.667		15.85	34.50		50.35	
3000	#2 wire		10	.800		21	41		62	
3100	3/0 wire		8	1		32	51.50		83.50	
3200	4/0 wire		7	1.143		36.50	59		95.50	
3400	250 kcmil wire		5	1.600		42.50	82.50		125	
3600	500 kcmil wire	↓	4	2	↓	52.50	103		155.50	

26 05 33 – Raceway and Boxes for Electrical Systems

26 05 33.13 Conduit

0010	CONDUIT To 15' high, includes 2 terminations, 2 elbows, R260533-22									
0020	11 beam clamps, and 11 couplings per 100 L.F.									
0300	Aluminum, 1/2" diameter	1 Elec	100	.080	L.F.	2.30	4.12		6.42	
0500	3/4" diameter	↓	90	.089		3.09	4.58		7.67	
0700	1" diameter		80	.100		4.10	5.15		9.25	
1000	1-1/4" diameter		70	.114		5.50	5.90		11.40	
1030	1-1/2" diameter		65	.123		6.60	6.35		12.95	
1050	2" diameter		60	.133		9	6.85		15.85	
1070	2-1/2" diameter	↓	50	.160		14.65	8.25		22.90	
1100	3" diameter	2 Elec	90	.178		20.50	9.15		29.65	
1130	3-1/2" diameter	↓	80	.200		26.50	10.30		36.80	
1140	4" diameter	↓	70	.229		32.50	11.80		44.30	
1750	Rigid galvanized steel, 1/2" diameter	1 Elec	90	.089		2.92	4.58		7.50	
1770	3/4" diameter		80	.100		3.10	5.15		8.25	
1800	1" diameter		65	.123		4.18	6.35		10.53	
1830	1-1/4" diameter		60	.133		5.90	6.85		12.75	
1850	1-1/2" diameter		55	.145		6.80	7.50		14.30	
1870	2" diameter		45	.178		8.75	9.15		17.90	
1900	2-1/2" diameter	↓	35	.229		17	11.80		28.80	
1930	3" diameter	2 Elec	50	.320		21.50	16.50		38	
1950	3-1/2" diameter	↓	44	.364		26.50	18.75		45.25	
1970	4" diameter	↓	40	.400		31.50	20.50		52	
2500	Steel, intermediate conduit (IMC), 1/2" diameter	1 Elec	100	.080		1.99	4.12		6.11	
2530	3/4" diameter		90	.089		2.38	4.58		6.96	
2550	1" diameter		70	.114		3.32	5.90		9.22	
2570	1-1/4" diameter		65	.123		4.42	6.35		10.77	
2600	1-1/2" diameter		60	.133		5.35	6.85		12.20	
2630	2" diameter		50	.160		6.80	8.25		15.05	
2650	2-1/2" diameter	↓	40	.200		13.60	10.30		23.90	
2670	3" diameter	2 Elec	60	.267		18.25	13.75		32	
2700	3-1/2" diameter	↓	54	.296		23	15.25		38.25	
2730	4" diameter	↓	50	.320		25.50	16.50		42	
5000	Electric metallic tubing (EMT), 1/2" diameter	1 Elec	170	.047		.70	2.43		3.13	
5020	3/4" diameter	↓	130	.062	↓	1.12	3.17		4.29	

05 Common Work Results for Electrical

5.33 – Raceway and Boxes for Electrical Systems

33.13 Conduit	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
1" diameter	1 Elec	115	.070	L.F.	1.94	3.59		5.53	7.50
1-1/4" diameter		100	.080		3.22	4.12		7.34	9.70
1-1/2" diameter		90	.089		4.21	4.58		8.79	11.50
2" diameter		80	.100		5.45	5.15		10.60	13.70
2-1/2" diameter		60	.133		13.05	6.85		19.90	24.50
3" diameter	2 Elec	100	.160		15.45	8.25		23.70	29.50
3-1/2" diameter		90	.178		19.70	9.15		28.85	35
4" diameter		80	.200		21.50	10.30		31.80	39.50
Add to labor for higher elevated installation									
15' to 20' high, add						10%			
20' to 25' high, add						20%			
25' to 30' high, add						25%			
30' to 35' high, add						30%			
35' to 40' high, add						35%			
Over 40' high, add						40%			
Allow. for cond. ftngs., 5% min.-20% max.									

33.16 Outlet Boxes

OUTLET BOXES									
Pressed steel, octagon, 4"	1 Elec	20	.400	Eq.	4.24	20.50		24.74	35.50
Covers, blank		64	.125		1.77	6.45		8.22	11.60
Extension rings		40	.200		7.05	10.30		17.35	23
Square, 4"		20	.400		2.90	20.50		23.40	34
Extension rings		40	.200		7.10	10.30		17.40	23
Covers, blank		64	.125		1.93	6.45		8.38	11.75
Plaster rings		64	.125		3.90	6.45		10.35	13.95
Switchbox		27	.296		6.80	15.25		22.05	30.50
Concrete, floor, 1 gong		5.30	1.509		124	78		202	252
Poke-thru fitting, fire rated, for 3-3/4" floor		6.80	1.176		120	60.50		180.50	223
For 7" floor		6.80	1.176		124	60.50		184.50	228
Pedestal, 15 amp, duplex receptacle & blank plate		5.25	1.524		135	78.50		213.50	265
Duplex receptacle and telephone plate		5.25	1.524		135	78.50		213.50	265
Pedestal, 20 amp, duplex recept. & phone plate		5	1.600		136	82.50		218.50	272
Abandonment plate		32	.250		38.50	12.90		51.40	61.50

33.18 Pull Boxes

PULL BOXES									
Sheet metal, pull box, NEMA 1, type SC, 6" W x 6" H x 4" D	1 Elec	8	1	Eq.	15.50	51.50		67	94
8" W x 8" H x 4" D		8	1		21	51.50		72.50	101
10" W x 12" H x 6" D		5.30	1.509		25.50	78		103.50	144
16" W x 20" H x 8" D		4	2		86.50	103		189.50	250
20" W x 24" H x 8" D		3.20	2.500		94	129		223	296
24" W x 36" H x 8" D		2.70	2.963		145	153		298	385
Pull box, hinged, NEMA 1, 6" W x 6" H x 4" D		8	1		9.95	51.50		61.45	88
12" W x 16" H x 6" D		4.70	1.702		32.50	87.50		120	167
20" W x 20" H x 6" D		3.60	2.222		65	115		180	243
20" W x 20" H x 8" D		3.20	2.500		130	129		259	335
24" W x 36" H x 8" D		2.70	2.963		208	153		361	455
24" W x 42" H x 8" D		2	4		315	206		521	655
Pull box, NEMA 3R, type SC, rointight & weatherproof									
6" L x 6" W x 6" D	1 Elec	10	.800	Eq.	26	41		67	90
8" L x 6" W x 6" D		8	1		32.50	51.50		84	113
10" L x 6" W x 6" D		7	1.143		43.50	59		102.50	136
12" L x 12" W x 6" D		5	1.600		61	82.50		143.50	191

26 05 Common Work Results for Electrical

26 05 33 – Raceway and Boxes for Electrical Systems

26 05 33.18 Pull Boxes		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	In
							Labor	Equipment		
2350	16" L x 16" W x 6" D	1 Elec	4.50	1.778	Eq.	122	91.50		213.50	
2400	20" L x 20" W x 6" D		4	2		167	103		270	
2450	24" L x 18" W x 8" D		3	2.667		173	137		310	
2500	24" L x 24" W x 10" D		2.50	3.200		222	165		387	
2550	30" L x 24" W x 12" D		2	4		445	206		651	
2600	36" L x 36" W x 12" D		1.50	5.333		590	275		865	
2800	Cast iron, pull boxes for surface mounting									
3000	NEMA 4, watertight & dust tight									
3050	6" L x 6" W x 6" D	1 Elec	4	2	Eq.	252	103		355	
3100	8" L x 6" W x 6" D		3.20	2.500		273	129		402	
3150	10" L x 6" W x 6" D		2.50	3.200		340	165		505	
3200	12" L x 12" W x 6" D		2.30	3.478		600	179		779	
3250	16" L x 16" W x 6" D		1.30	6.154		1,575	315		1,890	
3300	20" L x 20" W x 6" D		.80	10		2,925	515		3,440	
3350	24" L x 18" W x 8" D		.70	11.429		3,050	590		3,640	
3400	24" L x 24" W x 10" D		.50	16		4,700	825		5,525	
3450	30" L x 24" W x 12" D		.40	20		7,850	1,025		8,875	
3500	36" L x 36" W x 12" D		.20	40		9,725	2,050		11,775	
6000	J.I.C. wiring boxes, NEMA 12, dust tight & drip tight									
6050	6" L x 8" W x 4" D	1 Elec	10	.800	Eq.	60	41		101	
6100	8" L x 10" W x 4" D		8	1		75	51.50		126.50	
6150	12" L x 14" W x 6" D		5.30	1.509		126	78		204	
6200	14" L x 16" W x 6" D		4.70	1.702		157	87.50		244.50	
6250	16" L x 20" W x 6" D		4.40	1.818		310	93.50		403.50	
6300	24" L x 30" W x 6" D		3.20	2.500		455	129		584	
6350	24" L x 30" W x 8" D		2.90	2.759		490	142		632	
6400	24" L x 36" W x 8" D		2.70	2.963		540	153		693	
6450	24" L x 42" W x 8" D		2.30	3.478		595	179		774	
6500	24" L x 48" W x 8" D		2	4		645	206		851	

26 05 33.23 Wireway

0010	WIREWAY to 15' high									
0100	Screw cover, NEMA 1 w/fitings and supports, 2-1/2" x 2-1/2"	1 Elec	45	.178	L.F.	11.45	9.15		20.60	
0200	4" x 4"	"	40	.200		12.65	10.30		22.95	
0400	6" x 6"	2 Elec	60	.267		19.75	13.75		33.50	
0600	8" x 8"	"	40	.400		33	20.50		53.50	
4475	Screw cover, NEMA 3R w/fitings and supports, 4" x 4"	1 Elec	36	.222		27	11.45		38.45	
4480	6" x 6"	2 Elec	55	.291		34	15		49	
4485	8" x 8"		36	.444		55	23		78	
4490	12" x 12"		18	.889		77	46		123	
9980	Allow. for wireway ftngs., 5% min.-20% max.									

26 05 36 – Cable Trays for Electrical Systems

26 05 36.10 Cable Tray Ladder Type

0010	CABLE TRAY LADDER TYPE w/ftngs. & supports, 4" dp., to 15' elev.									
0160	Galvanized steel tray									
0170	4" rung spacing, 6" wide	2 Elec	98	.163	L.F.	17.80	8.40		26.20	
0200	12" wide		86	.186		21.50	9.60		31.10	
0400	18" wide		82	.195		25	10.05		35.05	
0600	24" wide		78	.205		28.50	10.55		39.05	
3200	Aluminum tray, 4" deep, 6" rung spacing, 6" wide		134	.119		17.65	6.15		23.80	
3220	12" wide		124	.129		19.75	6.65		26.40	
3230	18" wide		114	.140		22	7.25		29.25	
3240	24" wide		106	.151		25.50	7.80		33.30	

05 Common Work Results for Electrical

5 36 – Cable Trays for Electrical Systems

36.10 Cable Tray Ladder Type

Allow. for tray ftngs., 5% min.-20% max.

5 39 – Underfloor Raceways for Electrical Systems

39.30 Conduit In Concrete Slab

CONDUIT IN CONCRETE SLAB Including terminations, fittings and supports

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
PVC, schedule 40, 1/2" diameter	1 Elec	270	.030	L.F.	.80	1.53		2.33	3.16
3/4" diameter		230	.035		.97	1.79		2.76	3.74
1" diameter		200	.040		1.30	2.06		3.36	4.51
1-1/4" diameter		170	.047		1.82	2.43		4.25	5.65
1-1/2" diameter		140	.057		2.19	2.95		5.14	6.80
2" diameter		120	.067		2.80	3.44		6.24	8.25
Rigid galvanized steel, 1/2" diameter		200	.040		2.65	2.06		4.71	6
3/4" diameter		170	.047		2.83	2.43		5.26	6.75
1" diameter		130	.062		3.91	3.17		7.08	9.05
1-1/4" diameter		110	.073		5.35	3.75		9.10	11.50
1-1/2" diameter		100	.080		6.25	4.12		10.37	13.05
2" diameter		90	.089		7.95	4.58		12.53	15.60

39.40 Conduit In Trench

CONDUIT IN TRENCH Includes terminations and fittings

Does not include excavation or backfill, see Section 31 23 16.00

Rigid galvanized steel, 2" diameter	1 Elec	150	.053	L.F.	7.65	2.75		10.40	12.50
2-1/2" diameter	"	100	.080		14.90	4.12		19.02	22.50
3" diameter	2 Elec	160	.100		19.25	5.15		24.40	28.50
3-1/2" diameter		140	.114		25	5.90		30.90	36.50
4" diameter		100	.160		28	8.25		36.25	43.50
5" diameter		80	.200		57	10.30		67.30	78.50
6" diameter		60	.267		84	13.75		97.75	113

05 43 – Underground Ducts and Raceways for Electrical Systems

43.10 Trench Duct

TRENCH DUCT Steel with cover

Standard adjustable, depths to 4"

Straight, single compartment, 9" wide	2 Elec	40	.400	L.F.	114	20.50		134.50	157
12" wide		32	.500		130	26		156	182
18" wide		26	.615		173	31.50		204.50	238
24" wide		22	.727		222	37.50		259.50	300
30" wide		20	.800		268	41		309	355
36" wide		16	1		320	51.50		371.50	430
Horizontal elbow, 9" wide		5.40	2.963	Ea.	425	153		578	695
12" wide		4.60	3.478		490	179		669	805
18" wide		4	4		625	206		831	1,000
24" wide		3.20	5		880	258		1,138	1,350
30" wide		2.60	6.154		1,175	315		1,490	1,775
36" wide		2.40	6.667		1,525	345		1,870	2,225
Vertical elbow, 9" wide		5.40	2.963		148	153		301	390
12" wide		4.60	3.478		160	179		339	445
18" wide		4	4		184	206		390	515
24" wide		3.20	5		229	258		487	635
30" wide		2.60	6.154		252	315		567	755
36" wide		2.40	6.667		278	345		623	820
Cross, 9" wide		4	4		695	206		901	1,075
12" wide		3.20	5		735	258		993	1,200

26 05 Common Work Results for Electrical

26 05 43 – Underground Ducts and Raceways for Electrical Systems

26 05 43.10 Trench Duct		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Notes
4000	18" wide	2 Elec	2.60	6.154	Eq.	880	315		1,195	1.4
4200	24" wide		2.20	7.273		1,125	375		1,500	1.7
4400	30" wide		2	8		1,450	410		1,860	2.2
4600	36" wide		1.80	8.889		1,800	460		2,260	2.6
4800	End closure, 9" wide		14.40	1.111		43.50	57.50		101	1
5000	12" wide		12	1.333		49.50	68.50		118	1
5200	18" wide		10	1.600		76	82.50		158.50	2
5400	24" wide		8	2		100	103		203	2
5600	30" wide		6.60	2.424		126	125		251	3
5800	36" wide		5.80	2.759		149	142		291	3
6000	Tees, 9" wide		4	4		420	206		626	7
6200	12" wide		3.60	4.444		490	229		719	8
6400	18" wide		3.20	5		625	258		883	10
6600	24" wide		3	5.333		900	275		1,175	14
6800	30" wide		2.60	6.154		1,175	315		1,490	17
7000	36" wide		2	8		1,525	410		1,935	23
7200	Riser, and cabinet connector, 9" wide		5.40	2.963		184	153		337	4
7400	12" wide		4.60	3.478		215	179		394	5
7600	18" wide		4	4		264	206		470	6
7800	24" wide		3.20	5		320	258		578	7
8000	30" wide		2.60	6.154		365	315		680	8
8200	36" wide		2	8		425	410		835	10
8400	Insert assembly, cell to conduit adapter, 1-1/4"	1 Elec	16	.500		73	26		99	1

26 05 43.20 Underfloor Duct

0010	UNDERFLOOR DUCT									
0100	Duct, 1-3/8" x 3-1/8" blank, standard	2 Elec	160	.100	L.F.	13.95	5.15		19.10	
0200	1-3/8" x 7-1/4" blank, super duct		120	.133		28	6.85		34.85	
0400	7/8" or 1-3/8" insert type, 24" O.C., 1-3/8" x 3-1/8", std.		140	.114		18.70	5.90		24.60	
0600	1-3/8" x 7-1/4", super duct		100	.160		32.50	8.25		40.75	
0800	Junction box, single duct, 1 level, 3-1/8"	1 Elec	4	2	Eq.	420	103		523	6
1000	Junction box, single duct, 1 level, 7-1/4"		2.70	2.963		490	153		643	7
1200	1 level, 2 duct, 3-1/8"		3.20	2.500		560	129		689	8
1400	Junction box, 1 level, 2 duct, 7-1/4"		2.30	3.478		1,450	179		1,629	18
1600	Triple duct, 3-1/8"		2.30	3.478		950	179		1,129	13
1800	Insert to conduit adapter, 3/4" & 1"		32	.250		34.50	12.90		47.40	
2000	Support, single cell		27	.296		51.50	15.25		66.75	
2200	Super duct		16	.500		51.50	26		77.50	
2400	Double cell		16	.500		51.50	26		77.50	
2600	Triple cell		11	.727		51.50	37.50		89	1
2800	Vertical elbow, standard duct		10	.800		92.50	41		133.50	1
3000	Super duct		8	1		92.50	51.50		144	1
3200	Cabinet connector, standard duct		32	.250		69.50	12.90		82.40	
3400	Super duct		27	.296		69.50	15.25		84.75	
3600	Conduit adapter, 1" to 1-1/4"		32	.250		69.50	12.90		82.40	
3800	2" to 1-1/4"		27	.296		83.50	15.25		98.75	1
4000	Outlet, low tension (tele, computer, etc.)		8	1		97.50	51.50		149	1
4200	High tension, receptacle (120 volt)		8	1		97.50	51.50		149	1

26 05 80 – Wiring Connections

26 05 80.10 Motor Connections

0010	MOTOR CONNECTIONS									
0020	Flexible conduit and fittings, 115 volt, 1 phase, up to 1 HP motor	1 Elec	8	1	Eq.	10.30	51.50		61.80	
0120	230 volt, 10 HP motor, 3 phase		4.20	1.905		17.55	98		115.55	1

05 Common Work Results for Electrical

5 80 – Wiring Connections

80.10 Motor Connections

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
25 HP motor	1 Elec	2.70	2.963	Eq.	36	153		189	268
50 HP motor		2.20	3.636		89	187		276	380
100 HP motor		1.50	5.333		217	275		492	650

5 90 – Residential Applications

90.10 Residential Wiring

RESIDENTIAL WIRING

20' avg. runs and #14/2 wiring incl. unless otherwise noted									
Service & panel, includes 24' SE-AL cable, service eye, meter, Socket, panel board, main bkr., ground rod, 15 or 20 amp 1-pole circuit breakers, and misc. hardware									
100 amp, with 10 branch breakers	1 Elec	1.19	6.723	Eq.	590	345		935	1,175
With PVC conduit and wire		.92	8.696		670	450		1,120	1,400
With RGS conduit and wire		.73	10.959		845	565		1,410	1,775
150 amp, with 14 branch breakers		1.03	7.767		915	400		1,315	1,600
With PVC conduit and wire		.82	9.756		1,075	505		1,580	1,925
With RGS conduit and wire		.67	11.940		1,400	615		2,015	2,475
200 amp, with 18 branch breakers	2 Elec	1.80	8.889		1,200	460		1,660	2,000
With PVC conduit and wire		1.46	10.959		1,375	565		1,940	2,350
With RGS conduit and wire		1.24	12.903		1,825	665		2,490	3,025
Lightning surge suppressor for above services, add	1 Elec	32	.250		59.50	12.90		72.40	84.50
Switch devices									
Single pole, 15 amp, ivory, with a 1-gang box, cover plate, Type NM (Ramex) cable	1 Elec	17.10	.468	Eq.	13.95	24		37.95	51.50
Type MC (BX) cable		14.30	.559		30	29		59	76
EMT & wire		5.71	1.401		38	72		110	150
3-way, #14/3, type NM cable		14.55	.550		18.60	28.50		47.10	63
Type MC cable		12.31	.650		40.50	33.50		74	94.50
EMT & wire		5	1.600		42	82.50		124.50	170
4-way, #14/3, type NM cable		14.55	.550		28	28.50		56.50	73.50
Type MC cable		12.31	.650		50	33.50		83.50	105
EMT & wire		5	1.600		51.50	82.50		134	180
S.P., 20 amp, #12/2, type NM cable		13.33	.600		21.50	31		52.50	70
Type MC cable		11.43	.700		35	36		71	92.50
EMT & wire		4.85	1.649		47	85		132	179
S.P. rotary dimmer, 600W, no wiring		17	.471		24	24.50		48.50	63
S.P. rotary dimmer, 600W, type NM cable		14.55	.550		30	28.50		58.50	75.50
Type MC cable		12.31	.650		46	33.50		79.50	101
EMT & wire		5	1.600		55.50	82.50		138	185
3-way rotary dimmer, type NM cable		13.33	.600		37.50	31		68.50	87
Type MC cable		11.43	.700		53.50	36		89.50	113
EMT & wire		4.85	1.649		63	85		148	197
Interval timer wall switch, 20 amp, 1-30 min., #12/2									
Type NM cable	1 Elec	14.55	.550	Eq.	59	28.50		87.50	107
Type MC cable		12.31	.650		65.50	33.50		99	122
EMT & wire		5	1.600		84	82.50		166.50	216
Decorative style									
S.P., 15 amp, type NM cable	1 Elec	17.10	.468	Eq.	18.85	24		42.85	56.50
Type MC cable		14.30	.559		35	29		64	81.50
EMT & wire		5.71	1.401		43	72		115	156
3-way, #14/3, type NM cable		14.55	.550		23.50	28.50		52	68.50
Type MC cable		12.31	.650		45	33.50		78.50	99.50
EMT & wire		5	1.600		47	82.50		129.50	175

26 05 Common Work Results for Electrical

26 05 90 - Residential Applications

26 05 90.10 Residential Wiring		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
2600	4-way, #14/3, type NM cable	1 Elec	14.55	.550	Ea.	33	28.50		61.50
2620	Type MC cable		12.31	.650		54.50	33.50		88
2630	EMT & wire		5	1.600		56.50	82.50		139
2650	S.P., 20 amp, #12/2, type NM cable		13.33	.600		26.50	31		57.50
2670	Type MC cable		11.43	.700		40	36		76
2680	EMT & wire		4.85	1.649		52	85		137
2700	S.P., slide dimmer, type NM cable		17.10	.468		37.50	24		61.50
2720	Type MC cable		14.30	.559		54	29		83
2730	EMT & wire		5.71	1.401		63.50	72		135.50
2750	S.P., touch dimmer, type NM cable		17.10	.468		32.50	24		56.50
2770	Type MC cable		14.30	.559		48.50	29		77.50
2780	EMT & wire		5.71	1.401		58.50	72		130.50
2800	3-way touch dimmer, type NM cable		13.33	.600		52.50	31		83.50
2820	Type MC cable		11.43	.700		68.50	36		104.50
2830	EMT & wire	▼	4.85	1.649	▼	78	85		163
3000	Combination devices								
3100	S.P. switch/15 amp recept., 1-vary, 1-gang box, plate								
3110	Type NM cable	1 Elec	11.43	.700	Ea.	26.50	36		62.50
3120	Type MC cable		10	.800		43	41		84
3130	EMT & wire		4.40	1.818		52.50	93.50		146
3150	S.P. switch/pilot light, type NM cable		11.43	.700		27.50	36		63.50
3170	Type MC cable		10	.800		44	41		85
3180	EMT & wire		4.43	1.806		53.50	93		146.50
3190	2-S.P. switches, 2-#14/2, no wiring		14	.571		8.90	29.50		38.40
3200	2-S.P. switches, 2-#14/2, type NM cables		10	.800		31.50	41		72.50
3220	Type MC cable		8.89	.900		56	46.50		102.50
3230	EMT & wire		4.10	1.951		56.50	101		157.50
3250	3-way switch/15 amp recept., #14/3, type NM cable		10	.800		35.50	41		76.50
3270	Type MC cable		8.89	.900		57	46.50		103.50
3280	EMT & wire		4.10	1.951		59	101		160
3300	2-3 way switches, 2-#14/3, type NM cables		8.89	.900		46.50	46.50		93
3320	Type MC cable		8	1		82.50	51.50		134
3330	EMT & wire		4	2		67	103		170
3350	S.P. switch/20 amp recept., #12/2, type NM cable		10	.800		39.50	41		80.50
3370	Type MC cable		8.89	.900		46.50	46.50		93
3380	EMT & wire	▼	4.10	1.951	▼	65	101		166
3400	Decorative style								
3410	S.P. switch/15 amp recept., type NM cable	1 Elec	11.43	.700	Ea.	31.50	36		67.50
3420	Type MC cable		10	.800		48	41		89
3430	EMT & wire		4.40	1.818		57.50	93.50		151
3450	S.P. switch/pilot light, type NM cable		11.43	.700		32.50	36		68.50
3470	Type MC cable		10	.800		48.50	41		89.50
3480	EMT & wire		4.40	1.818		58.50	93.50		152
3500	2-S.P. switches, 2-#14/2, type NM cables		10	.800		36.50	41		77.50
3520	Type MC cable		8.89	.900		61	46.50		107.50
3530	EMT & wire		4.10	1.951		61.50	101		162.50
3550	3-way/15 amp recept., #14/3, type NM cable		10	.800		40.50	41		81.50
3570	Type MC cable		8.89	.900		62	46.50		108.50
3580	EMT & wire		4.10	1.951		64	101		165
3650	2-3 way switches, 2-#14/3, type NM cables		8.89	.900		51.50	46.50		98
3670	Type MC cable		8	1		87	51.50		138.50
3680	EMT & wire		4	2		72	103		175
3700	S.P. switch/20 amp recept., #12/2, type NM cable	▼	10	.800	▼	44.50	41		85.50

26 05 Common Work Results for Electrical

26 5 90 - Residential Applications

26 90.10 Residential Wiring		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
26 90.10	Type MC cable	1 Elec	8.89	.900	Ea.	51.50	46.50		98	126
26 90.10	EMT & wire	▼	4.10	1.951	▼	70	101		171	227
26 90.10	Receptacle devices									
26 90.10	Duplex outlet, 15 amp recept., Ivory, 1-gang box, plate									
26 90.10	Type NM cable	1 Elec	14.55	.550	Ea.	12.45	28.50		40.95	56
26 90.10	Type MC cable		12.31	.650		28.50	33.50		62	81.50
26 90.10	EMT & wire		5.33	1.501		36.50	77.50		114	157
26 90.10	With #12/2, type NM cable		12.31	.650		15.55	33.50		49.05	67
26 90.10	Type MC cable		10.67	.750		29	38.50		67.50	89.50
26 90.10	EMT & wire		4.71	1.699		41	87.50		128.50	176
26 90.10	20 amp recept., #12/2, type NM cable		12.31	.650		25	33.50		58.50	77.50
26 90.10	Type MC cable		10.67	.750		38.50	38.50		77	100
26 90.10	EMT & wire	▼	4.71	1.699	▼	50.50	87.50		138	187
26 90.10	For GFI see Section 26 05 90.10 line 4300 below									
26 90.10	Decorative style, 15 amp recept., type NM cable	1 Elec	14.55	.550	Ea.	17.30	28.50		45.80	61.50
26 90.10	Type MC cable		12.31	.650		33.50	33.50		67	87
26 90.10	EMT & wire		5.33	1.501		41.50	77.50		119	162
26 90.10	With #12/2, type NM cable		12.31	.650		20.50	33.50		54	72.50
26 90.10	Type MC cable		10.67	.750		33.50	38.50		72	95
26 90.10	EMT & wire		4.71	1.699		45.50	87.50		133	181
26 90.10	20 amp recept. #12/2, type NM cable		12.31	.650		30	33.50		63.50	83
26 90.10	Type MC cable		10.67	.750		43	38.50		81.50	106
26 90.10	EMT & wire		4.71	1.699		55	87.50		142.50	192
26 90.10	GFI, 15 amp recept., type NM cable		12.31	.650		48	33.50		81.50	103
26 90.10	Type MC cable		10.67	.750		64.50	38.50		103	129
26 90.10	EMT & wire		4.71	1.699		72.50	87.50		160	211
26 90.10	GFI with #12/2, type NM cable		10.67	.750		51.50	38.50		90	115
26 90.10	Type MC cable		9.20	.870		64.50	45		109.50	138
26 90.10	EMT & wire		4.21	1.900		76.50	98		174.50	230
26 90.10	20 amp recept., #12/2 type NM cable		10.67	.750		53.50	38.50		92	117
26 90.10	Type MC cable		9.20	.870		66.50	45		111.50	141
26 90.10	EMT & wire		4.21	1.900		78.50	98		176.50	233
26 90.10	Weather-proof cover for above receptacles, add	▼	32	.250	▼	5.65	12.90		18.55	25.50
26 90.10	Air conditioner outlet, 20 amp-240 volt recept.									
26 90.10	30' of #12/2, 2 pole circuit breaker									
26 90.10	Type NM cable	1 Elec	10	.800	Ea.	65.50	41		106.50	134
26 90.10	Type MC cable		9	.889		82	46		128	159
26 90.10	EMT & wire		4	2		90	103		193	253
26 90.10	Decorative style, type NM cable		10	.800		70.50	41		111.50	139
26 90.10	Type MC cable		9	.889		86.50	46		132.50	164
26 90.10	EMT & wire	▼	4	2	▼	95	103		198	258
26 90.10	Dryer outlet, 30 amp-240 volt recept., 20' of #10/3									
26 90.10	2 pole circuit breaker									
26 90.10	Type NM cable	1 Elec	6.41	1.248	Ea.	73	64.50		137.50	177
26 90.10	Type MC cable		5.71	1.401		81.50	72		153.50	198
26 90.10	EMT & wire	▼	3.48	2.299	▼	86.50	119		205.50	272
26 90.10	Range outlet, 50 amp-240 volt recept., 30' of #8/3									
26 90.10	Type NM cable	1 Elec	4.21	1.900	Ea.	105	98		203	262
26 90.10	Type MC cable		4	2		167	103		270	340
26 90.10	EMT & wire		2.96	2.703		119	139		258	340
26 90.10	Central vacuum outlet, Type NM cable		6.40	1.250		71	64.50		135.50	175
26 90.10	Type MC cable		5.71	1.401		94	72		166	211
26 90.10	EMT & wire	▼	3.48	2.299	▼	98	119		217	285

26 05 Common Work Results for Electrical

26 05 90 – Residential Applications

26 05 90.10 Residential Wiring		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	To
							Labor	Equipment		low
4800	30 amp-110 volt locking recept., #10/2 circ. bkr.									
4810	Type NM cable	1 Elec	6.20	1.290	Ea.	82.50	66.50		149	
4820	Type MC cable		5.40	1.481		108	76.50		184.50	
4830	EMT & wire	▼	3.20	2.500	▼	109	129		238	
4900	Low voltage outlets									
4910	Telephone recept., 20' of 4/C phone wire	1 Elec	26	.308	Ea.	12.15	15.85		28	
4920	TV recept., 20' of RG59U coax wire, F type connector	"	16	.500	"	20.50	26		46.50	
4950	Door bell chime, transformer, 2 buttons, 60' of bellwire									
4970	Economy model	1 Elec	11.50	.696	Ea.	76.50	36		112.50	
4980	Custom model		11.50	.696		119	36		155	
4990	Luxury model, 3 buttons	▼	9.50	.842	▼	320	43.50		363.50	
6000	Lighting outlets									
6050	Wire only (for fixture), type NM cable	1 Elec	32	.250	Ea.	8.05	12.90		20.95	
6070	Type MC cable		24	.333		17.30	17.20		34.50	
6080	EMT & wire		10	.800		24	41		65	
6100	Box (4"), and wire (for fixture), type NM cable		25	.320		20.50	16.50		37	
6120	Type MC cable		20	.400		29.50	20.50		50	
6130	EMT & wire	▼	11	.727	▼	36	37.50		73.50	
6200	Fixtures (use with lines 6050 or 6100 above)									
6210	Conopy style, economy grade	1 Elec	40	.200	Ea.	37	10.30		47.30	
6220	Custom grade		40	.200		57	10.30		67.30	
6250	Dining room chandelier, economy grade		19	.421		92.50	21.50		114	
6260	Custom grade		19	.421		272	21.50		293.50	
6270	Luxury grade		15	.533		610	27.50		637.50	
6310	Kitchen fixture (fluorescent), economy grade		30	.267		68.50	13.75		82.25	
6320	Custom grade		25	.320		188	16.50		204.50	
6350	Outdoor, wall mounted, economy grade		30	.267		35	13.75		48.75	
6360	Custom grade		30	.267		120	13.75		133.75	
6370	Luxury grade		25	.320		272	16.50		288.50	
6410	Outdoor PAR floodlights, 1 lamp, 150 watt		20	.400		37.50	20.50		58	
6420	2 lamp, 150 watt each		20	.400		62.50	20.50		83	
6425	Motion sensing, 2 lamp, 150 watt each		20	.400		75	20.50		95.50	
6430	For infrared security sensor, add		32	.250		126	12.90		138.90	
6450	Outdoor, quartz-halogen, 300 watt flood		20	.400		45.50	20.50		66	
6600	Recessed downlight, round, pre-wired, 50 or 75 watt trim		30	.267		46.50	13.75		60.25	
6610	With shower light trim		30	.267		57.50	13.75		71.25	
6620	With wall washer trim		28	.286		69.50	14.75		84.25	
6630	With eye-boll trim	▼	28	.286		69.50	14.75		84.25	
6640	For direct contact with insulation, add					2.47			2.47	
6700	Porcelain lamp holder	1 Elec	40	.200		4.83	10.30		15.13	
6710	With pull switch		40	.200		5.65	10.30		15.95	
6750	Fluorescent strip, 1-20 watt tube, wrap around diffuser, 24"		24	.333		58	17.20		75.20	
6760	1-34 watt tube, 48"		24	.333		74.50	17.20		91.70	
6770	2-34 watt tubes, 48"		20	.400		88.50	20.50		109	
6780	With residential ballast		20	.400		99.50	20.50		120	
6800	Bathroom heat lamp, 1-250 watt		28	.286		51	14.75		65.75	
6810	2-250 watt lamps	▼	28	.286	▼	81.50	14.75		96.25	
6820	For timer switch, see Section 26 05 90.10 line 2400									
6900	Outdoor post lamp, incl. post, fixture, 35' of #14/2									
6910	Type NMC cable	1 Elec	3.50	2.286	Ea.	207	118		325	
6920	Photo-eye, add		27	.296		37.50	15.25		52.75	
6950	Clock dial time switch, 24 hr., w/enclousure, type NM cable		11.43	.700		72	36		108	
6970	Type MC cable	▼	11	.727	▼	88	37.50		125.50	

05 Common Work Results for Electrical

5 90 – Residential Applications

90.10 Residential Wiring		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
							Labor	Equipment		
EMT & wire		1 Elec	4.85	1.649	Eo.	96	85		181	233
Alarm systems										
Smoke detectors, box, #14/3, type NM cable		1 Elec	14.55	.550	Eo.	37	28.50		65.50	83
Type MC cable			12.31	.650		52.50	33.50		86	108
EMT & wire		▼	5	1.600	▼	54	82.50		136.50	183
For relay output to security system, odd					▼	14			14	15.40
Residential equipment										
Disposal hook-up, incl. switch, outlet box, 3' of flex										
20 amp-1 pole circ. bkr., and 25' of #12/2										
Type NM cable		1 Elec	10	.800	Eo.	36.50	41		77.50	102
Type MC cable		▼	8	1	▼	51	51.50		102.50	133
EMT & wire		▼	5	1.600	▼	64	82.50		146.50	193
Trash compactor or dishwasher hook-up, incl. outlet box, 3' of flex, 15 amp-1 pole circ. bkr., and 25' of #14/2										
Type NM cable		1 Elec	10	.800	Eo.	27	41		68	91
Type MC cable		▼	8	1	▼	45.50	51.50		97	127
EMT & wire		▼	5	1.600	▼	55	82.50		137.50	184
Hot water sink dispenser hook-up, use line 8100										
Vent/exhaust fan hook-up, type NM cable		1 Elec	32	.250	Eo.	8.05	12.90		20.95	28
Type MC cable			24	.333		17.30	17.20		34.50	44.50
EMT & wire		▼	10	.800	▼	24	41		65	88
Bathroom vent fan, 50 CFM (use with above hook-up)										
Economy model		1 Elec	15	.533	Eo.	27	27.50		54.50	70.50
Low noise model		▼	15	.533	▼	36.50	27.50		64	81
Custom model		▼	12	.667	▼	126	34.50		160.50	190
Bathroom or kitchen vent fan, 110 CFM										
Economy model		1 Elec	15	.533	Eo.	74.50	27.50		102	123
Low noise model		"	15	.533	"	92.50	27.50		120	143
Paddle fan, variable speed (w/o lights)										
Economy model (AC motor)		1 Elec	10	.800	Eo.	124	41		165	198
With light kit			10	.800		162	41		203	240
Custom model (AC motor)			10	.800		195	41		236	277
With light kit			10	.800		234	41		275	320
Luxury model (DC motor)			8	1		385	51.50		436.50	500
With light kit			8	1		425	51.50		476.50	545
Remote speed switch for above, odd		▼	12	.667	▼	32	34.50		66.50	87
Whole house exhaust fan, ceiling mount, 36", variable speed										
Remote switch, incl. shutters, 20 amp-1 pole circ. bkr.										
30' of #12/2, type NM cable		1 Elec	4	2	Eo.	1,200	103		1,303	1,450
Type MC cable			3.50	2.286		1,200	118		1,318	1,500
EMT & wire		▼	3	2.667	▼	1,225	137		1,362	1,550
Whirlpool tub hook-up, incl. timer switch, outlet box										
3' of flex, 20 amp-1 pole GFI circ. bkr.										
30' of #12/2, type NM cable		1 Elec	5	1.600	Eo.	133	82.50		215.50	269
Type MC cable		▼	4.20	1.905	▼	142	98		240	305
EMT & wire		▼	3.40	2.353	▼	154	121		275	350
Hot water heater hook-up, incl. 1-2 pole circ. bkr., box; 3' of flex, 20' of #10/2, type NM cable										
Type MC cable		1 Elec	5	1.600	Eo.	37.50	82.50		120	165
Type MC cable		▼	4.20	1.905	▼	58	98		156	211
EMT & wire		▼	3.40	2.353	▼	58	121		179	245
Heating/air conditioning										
Furnace/boiler hook-up, incl. firestop, local on-off switch										
Emergency switch, and 40' of type NM cable		1 Elec	4	2	Eo.	62	103		165	223

26 05 Common Work Results for Electrical

26 05 90 – Residential Applications

26 05 90.10 Residential Wiring		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	
							Labor	Equipment		
9070	Type MC cable	1 Elec	3.50	2.286	Eq.	87	118		205	
9080	EMT & wire	▼	1.50	5.333	▼	101	275		376	
9100	Air conditioner hook-up, incl. local 60 amp disc. switch									
9110	3' sealtite, 40 amp, 2 pole circuit breaker									
9130	40' of #8/2, type NM cable	1 Elec	3.50	2.286	Eq.	234	118		352	
9140	Type MC cable		3	2.667		330	137		467	
9150	EMT & wire	▼	1.30	6.154	▼	273	315		588	
9200	Heat pump hook-up, 1-40 & 1-100 amp 2 pole circ. bkr.									
9210	Local disconnect switch, 3' sealtite									
9220	40' of #8/2 & 30' of #3/2									
9230	Type NM cable	1 Elec	1.30	6.154	Eq.	615	315		930	1.1
9240	Type MC cable		1.08	7.407		760	380		1,140	1.4
9250	EMT & wire	▼	.94	8.511	▼	670	440		1,110	1.4
9500	Thermostat hook-up, using low voltage wire									
9520	Heating only, 25' of #18-3	1 Elec	24	.333	Eq.	10.95	17.20		28.15	
9530	Heating/cooling, 25' of #18-4	"	20	.400	"	13.20	20.50		33.70	

26 09 Instrumentation and Control for Electrical Systems

26 09 13 – Electrical Power Monitoring

26 09 13.10 Switchboard Instruments

0010	SWITCHBOARD INSTRUMENTS 3 phase, 4 wire									
0100	AC indicating, ammeter & switch	1 Elec	8	1	Eq.	1,925	51.50		1,976.50	
0200	Voltmeter & switch		8	1		1,925	51.50		1,976.50	
0300	Wattmeter		8	1		3,825	51.50		3,876.50	
0400	AC recording, ammeter		4	2		6,800	103		6,903	
0500	Voltmeter		4	2		6,800	103		6,903	
0600	Ground fault protection, zero sequence		2.70	2.963		6,000	153		6,153	
0700	Ground return path		2.70	2.963		6,000	153		6,153	
0800	3 current transformers, 5 to 800 amp		2	4		2,800	206		3,006	
0900	1000 to 1500 amp		1.30	6.154		4,025	315		4,340	
1200	2000 to 4000 amp		1	8		4,750	410		5,160	
1300	Fused potential transformer, maximum 600 volt	▼	8	1	▼	1,050	51.50		1,101.50	

26 12 Medium-Voltage Transformers

26 12 19 – Pad-Mounted, Liquid-Filled, Medium-Voltage Transformers

26 12 19.10 Transformer, Oil-Filled

0010	TRANSFORMER, OIL-FILLED primary delta or Y,									
0050	Pad mounted 5 kV or 15 kV, with taps, 277/480 V secondary, 3 phase									
0100	150 kVA	R-3	.65	30.769	Eq.	9,725	1,575	204	11,504	1
0200	300 kVA		.45	44.444		12,000	2,275	294	14,569	1
0300	500 kVA		.40	50		18,800	2,550	330	21,680	2
0400	750 kVA		.38	52.632		21,700	2,675	350	24,725	2
0500	1000 kVA		.26	76.923		25,700	3,925	510	30,135	3
0600	1500 kVA		.23	86.957		30,500	4,425	575	35,500	4
0700	2000 kVA		.20	100		38,500	5,100	660	44,260	5
0800	3750 kVA	▼	.16	125	▼	72,000	6,375	830	79,205	5

22 Low-Voltage Transformers

22.13 - Low-Voltage Distribution Transformers

13.10 Transformer, Dry-Type		Daily	Labor-			2012 Bare Costs			Total
TRANSFORMER, DRY-TYPE		Crew	Output	Hours	Unit	Material	Labor	Equipment	Ind O&P
Single phase, 240/480 volt primary, 120/240 volt secondary									
1 kVA	1 Elec	2	4	Eo.	257	206			590
2 kVA		1.60	5		385	258			810
3 kVA		1.40	5.714		475	295			965
5 kVA	2 Elec	1.20	6.667		660	345			1,250
7.5 kVA		2.20	7.273		915	375			1,550
10 kVA		1.60	10		1,175	515			2,050
15 kVA		1.20	13.333		1,275	685			2,425
25 kVA		1	16		1,725	825			3,125
37.5 kVA		.80	20		2,225	1,025			4,000
50 kVA		.70	22.857		2,650	1,175			4,675
75 kVA		.65	24.615		3,525	1,275			5,775
480 V primary 120/240 V secondary, nonvent., 15 kVA		1.20	13.333		1,275	685			2,425
25 kVA		.90	17.778		1,875	915			3,450
37 kVA		.75	21.333		2,225	1,100			4,100
50 kVA		.65	24.615		2,650	1,275			4,825
3 phase, 480 volt primary 120/208 volt secondary									
Ventilated, 3 kVA	1 Elec	1	8	Eo.	805	410			1,500
6 kVA		.80	10		1,100	515			1,975
9 kVA	2 Elec	.70	11.429		1,250	590			2,250
15 kVA		1.10	14.545		1,275	750			2,525
30 kVA		.90	17.778		1,300	915			2,800
45 kVA		.80	20		1,550	1,025			3,250
75 kVA		.70	22.857		2,350	1,175			4,325
112.5 kVA	R-3	.90	22.222		3,100	1,125	147		5,275
150 kVA		.85	23.529		4,050	1,200	156		6,425
225 kVA		.65	30.769		5,500	1,575	204		8,625
300 kVA		.55	36.364		6,950	1,850	241		10,700
500 kVA		.45	44.444		11,500	2,275	294		16,300
750 kVA		.35	57.143		20,200	2,925	380		27,000

24 Switchboards and Panelboards

24.13 - Switchboards

13.10 Incoming Switchboards

INCOMING SWITCHBOARDS main service section									
Aluminum bus bars, not including CT's or PT's									
No main disconnect, includes CT compartment									
120/208 volt, 4 wire, 600 amp	2 Elec	1	16	Ea.	4,025	825			5,650
800 amp		.88	18.182		4,025	935			5,825
1000 amp		.80	20		4,850	1,025			6,875
1200 amp		.72	22.222		4,850	1,150			7,025
1600 amp		.66	24.242		4,850	1,250			7,200
2000 amp		.62	25.806		5,225	1,325			7,725
3000 amp		.56	28.571		6,875	1,475			9,775
Fused switch & CT compartment									
120/208 volt, 4 wire, 400 amp	2 Elec	1.12	14.286	Eo.	2,700	735			4,075
600 amp		.94	17.021		3,200	875			4,825
800 amp		.84	19.048		10,900	980			13,500
1200 amp		.68	23.529		14,200	1,225			15,425
Pressure switch & CT compartment									

26 24 Switchboards and Panelboards

26 24 13 - Switchboards

26 24 13.10 Incoming Switchboards		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
3000	120/208 volt, 4 wire, 800 amp	2 Elec	.80	20	Eq.	9,800	1,025		10,825
3100	1200 amp		.66	24.242		19,000	1,250		20,250
3200	1600 amp		.62	25.806		20,100	1,325		21,425
3300	2000 amp		.56	28.571		21,400	1,475		22,875
4400	Circuit breaker, molded case & CT compartment								
4600	3 pole, 4 wire, 600 amp	2 Elec	.94	17.021	Eq.	8,425	875		9,300
4800	800 amp		.84	19.048		10,100	980		11,080
5000	1200 amp		.68	23.529		13,800	1,225		15,025
5100	Copper bus bars, not incl. CT's or PT's, add, minimum					15%			

26 24 13.30 Distribution Switchboards Section

0010 DISTRIBUTION SWITCHBOARDS SECTION									
0100	Aluminum bus bars, not including breakers								
0200	120/208 or 277/480 volt, 4 wire, 600 amp	2 Elec	1	16	Eq.	2,225	825		3,050
0300	800 amp		.88	18.182		2,925	935		3,860
0400	1000 amp		.80	20		2,925	1,025		3,950
0500	1200 amp		.72	22.222		3,625	1,150		4,775
0600	1600 amp		.66	24.242		4,175	1,250		5,425
0700	2000 amp		.62	25.806		4,875	1,325		6,200
0800	2500 amp		.60	26.667		5,500	1,375		6,875
0900	3000 amp		.56	28.571		6,675	1,475		8,150
0950	4000 amp		.52	30.769		9,750	1,575		11,325

26 24 13.40 Switchboards Feeder Section

0010 SWITCHBOARDS FEEDER SECTION group mounted devices									
0030	Circuit breakers								
0160	FA frame, 15 to 60 amp, 240 volt, 1 pole	1 Elec	8	1	Eq.	119	51.50		170.50
0280	FA frame, 70 to 100 amp, 240 volt, 1 pole		7	1.143		185	59		244
0420	KA frame, 70 to 225 amp		3.20	2.500		1,175	129		1,304
0430	LA frame, 125 to 400 amp		2.30	3.478		2,650	179		2,829
0460	MA frame, 450 to 600 amp		1.60	5		4,725	258		4,983
0470	700 to 800 amp		1.30	6.154		6,150	315		6,465
0480	MAL frame, 1000 amp		1	8		6,375	410		6,785
0490	PA frame, 1200 amp		.80	10		13,000	515		13,515
0500	Branch circuit, fusible switch, 600 volt, double 30/30 amp		4	2		890	103		993
0550	60/60 amp		3.20	2.500		915	129		1,044
0600	100/100 amp		2.70	2.963		1,150	153		1,303
0650	Single, 30 amp		5.30	1.509		740	78		818
0700	60 amp		4.70	1.702		740	87.50		827.50
0750	100 amp		4	2		1,075	103		1,178
0800	200 amp		2.70	2.963		1,425	153		1,578
0850	400 amp		2.30	3.478		2,600	179		2,779
0900	600 amp		1.80	4.444		3,200	229		3,429
0950	800 amp		1.30	6.154		5,350	315		5,665
1000	1200 amp		.80	10		6,125	515		6,640

26 24 16 - Panelboards

26 24 16.20 Panelboard and Load Center Circuit Breakers

0010 PANELBOARD AND LOAD CENTER CIRCUIT BREAKERS									
0050	Balt-on, 10,000 amp IC, 120 volt, 1 pole								
0100	15 to 50 amp	1 Elec	10	800	Eq.	14.80	41		55.80
0200	60 amp		8	1		21.50	51.50		73
0300	70 amp		8	1		28	51.50		79.50
0350	240 volt, 2 pole								
0400	15 to 50 amp	1 Elec	8	1	Eq.	32.50	51.50		84

24 Switchboards and Panelboards

4 16 – Panelboards

16.20 Panelboard and Load Center Circuit Breakers	Crew	Daily Labor-Hours		Unit	Material	2012 Bare Costs		Total	Total Incl O&P
		Output	Hours			Labor	Equipment		
60 amp	1 Elec	7.50	1.067	Ea.	58	55		113	146
80 to 100 amp		5	1.600		83.50	82.50		166	215
3 pole, 15 to 60 amp		6.20	1.290		103	66.50		169.50	213
70 amp		5	1.600		130	82.50		212.50	265
80 to 100 amp		3.60	2.222		147	115		262	335
22,000 amp I.C., 240 volt, 2 pole, 70 – 225 amp		2.70	2.963		635	153		788	925
3 pole, 70 – 225 amp		2.30	3.478		705	179		884	1,050
14,000 amp I.C., 277 volts, 1 pole, 15 – 30 amp		8	1		39	51.50		90.50	120
22,000 amp I.C., 480 volts, 2 pole, 70 – 225 amp		2.70	2.963		635	153		788	925
3 pole, 70 – 225 amp		2.30	3.478		780	179		959	1,125

16.30 Panelboards Commercial Applications

PANELBOARDS COMMERCIAL APPLICATIONS									
NQOD, w/20 amp 1 pole bolt-on circuit breakers									
3 wire, 120/240 volts, 100 amp main lugs									
10 circuits	1 Elec	1	8	Eo.	545	410		955	1,225
14 circuits		.88	9.091		665	470		1,135	1,425
18 circuits		.75	10.667		720	550		1,270	1,625
20 circuits		.65	12.308		810	635		1,445	1,850
225 amp main lugs, 24 circuits	2 Elec	1.20	13.333		910	685		1,595	2,025
30 circuits		.90	17.778		1,050	915		1,965	2,525
36 circuits		.80	20		1,200	1,025		2,225	2,875
38 circuits		.72	22.222		1,275	1,150		2,425	3,125
42 circuits		.66	24.242		1,350	1,250		2,600	3,350
4 wire, 120/208 volts, 100 amp main lugs, 12 circuits									
16 circuits	1 Elec	1	8		640	410		1,050	1,325
20 circuits		.75	10.667		735	550		1,285	1,625
24 circuits		.65	12.308		850	635		1,485	1,875
30 circuits		.60	13.333		915	685		1,600	2,025
225 amp main lugs, 32 circuits	2 Elec	.53	15.094		1,050	780		1,830	2,325
34 circuits		.90	17.778		1,175	915		2,090	2,675
36 circuits		.84	19.048		1,200	980		2,180	2,800
42 circuits		.80	20		1,225	1,025		2,250	2,900
		.68	23.529		1,375	1,225		2,600	3,350
NEHB, w/20 amp, 1 pole bolt-on circuit breakers									
4 wire, 277/480 volts, 100 amp main lugs, 12 circuits									
20 circuits	1 Elec	.88	9.091	Eo.	1,200	470		1,670	2,000
	"	.60	13.333		1,775	685		2,460	2,975
225 amp main lugs, 24 circuits	2 Elec	.90	17.778		2,000	915		2,915	3,575
30 circuits		.80	20		2,400	1,025		3,425	4,200
36 circuits		.72	22.222		2,800	1,150		3,950	4,775
NQOD panel, w/20 amp, 1 pole, circuit breakers									
3 wire, 120/240 volt with main circuit breaker									
100 amp main, 12 circuits	1 Elec	.80	10	Eo.	775	515		1,290	1,625
20 circuits	"	.60	13.333		985	685		1,670	2,100
225 amp main, 30 circuits	2 Elec	.68	23.529		1,850	1,225		3,075	3,875
42 circuits		.52	30.769		2,150	1,575		3,725	4,725
400 amp main, 30 circuits		.54	29.630		2,550	1,525		4,075	5,075
42 circuits		.50	32		2,850	1,650		4,500	5,600
4 wire, 120/208 volts with main circuit breaker									
100 amp main, 24 circuits	1 Elec	.47	17.021	Eo.	1,150	875		2,025	2,550
30 circuits	"	.40	20		1,300	1,025		2,325	2,975
225 amp main, 32 circuits	2 Elec	.72	22.222		2,150	1,150		3,300	4,075
42 circuits		.56	28.571		2,350	1,475		3,825	4,775
490 amp main, 42 circuits		.48	33.333		3,150	1,725		4,875	6,050

26 24 Switchboards and Panelboards

26 24 16 – Panelboards

26 24 16.30 Panelboards Commercial Applications		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total
2350	600 amp main, 42 circuits	2 Elec	.40	40	Ea.	4,675	2,050		6,725	
2400	NEHB, with 20 amp, 1 pole circuit breaker									
2450	4 wire, 277/480 volts with main circuit breaker									
2500	100 amp main, 24 circuits	1 Elec	.42	19.048	Ea.	2,300	980		3,280	
2550	30 circuits	"	.38	21.053		2,700	1,075		3,775	
2600	225 amp main, 30 circuits	2 Elec	.72	22.222		3,400	1,150		4,550	
2650	42 circuits	"	.56	28.571	▼	4,175	1,475		5,650	

26 24 19 – Motor-Control Centers

26 24 19.40 Motor Starters and Controls		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total
0010	MOTOR STARTERS AND CONTROLS									
0050	Magnetic, FVNR, with enclosure and heaters, 480 volt									
0100	5 HP, size 0	1 Elec	2.30	3.478	Ea.	259	179		438	
0200	10 HP, size 1	"	1.60	5		291	258		549	
0300	25 HP, size 2	2 Elec	2.20	7.273		545	375		920	
0400	50 HP, size 3		1.80	8.889		890	460		1,350	
0500	100 HP, size 4		1.20	13.333		1,975	685		2,660	
0600	200 HP, size 5	▼	.90	17.778		4,625	915		5,540	
0700	Combination, with motor circuit protectors, 5 HP, size 0	1 Elec	1.80	4.444		815	229		1,044	
0800	10 HP, size 1	"	1.30	6.154		845	315		1,160	
0900	25 HP, size 2	2 Elec	2	8		1,175	410		1,585	
1000	50 HP, size 3		1.32	12.121		1,700	625		2,325	
1200	100 HP, size 4	▼	.80	20		3,725	1,025		4,750	
1400	Combination, with fused switch, 5 HP, size 0	1 Elec	1.80	4.444		620	229		849	
1600	10 HP, size 1	"	1.30	6.154		665	315		980	
1800	25 HP, size 2	2 Elec	2	8		1,075	410		1,485	
2000	50 HP, size 3		1.32	12.121		1,825	625		2,450	
2200	100 HP, size 4	▼	.80	20	▼	3,175	1,025		4,200	

26 25 Enclosed Bus Assemblies

26 25 13 – Bus Duct/Busway and Fittings

26 25 13.40 Copper Bus Duct		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total
0010	COPPER BUS DUCT 10 ft. long									
0050	Indoor 3 pole 4 wire, plug-in, straight section, 225 amp	2 Elec	40	.400	L.F.	225	20.50		245.50	
1000	400 amp		32	.500		225	26		251	
1500	600 amp		26	.615		225	31.50		256.50	
2400	800 amp		20	.800		267	41		308	
2450	1000 amp		18	.889		295	46		341	
2500	1350 amp		16	1		400	51.50		451.50	
2510	1600 amp		12	1.333		455	68.50		523.50	
2520	2000 amp		10	1.600		575	82.50		657.50	
2550	Feeder, 600 amp		28	.571		197	29.50		226.50	
2600	800 amp		22	.727		239	37.50		276.50	
2700	1000 amp		20	.800		267	41		308	
2800	1350 amp		18	.889		375	46		421	
2900	1600 amp		14	1.143		430	59		489	
3000	2000 amp		12	1.333	▼	550	68.50		618.50	
3100	Elbows, 225 amp		4	4	Ea.	1,325	206		1,531	
3200	400 amp		3.60	4.444		1,325	229		1,554	
3300	600 amp		3.20	5		1,325	258		1,583	
3400	800 amp		2.80	5.714	▼	1,450	295		1,745	

25 Enclosed Bus Assemblies

5 13 – Bus Duct/Busway and Fittings

13.40 Copper Bus Duct		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
1000 amp	2 Elec	2.60	6.154	Ea.	1,625	315			1,940	2,250
1350 amp		2.40	6.667		1,800	345			2,145	2,500
1600 amp		2.20	7.273		1,950	375			2,325	2,700
2000 amp		1.80	8.889		2,425	460			2,885	3,325
End box, 225 amp		34	.471		180	24.50			204.50	235
400 amp		32	.500		180	26			206	237
600 amp		28	.571		180	29.50			209.50	242
800 amp		26	.615		180	31.50			211.50	246
1000 amp		24	.667		180	34.50			214.50	250
1350 amp		22	.727		171	37.50			208.50	244
1600 amp		20	.800		171	41			212	250
2000 amp		18	.889		210	46			256	300
Cable tap box end, 225 amp		3.20	5		1,475	258			1,733	1,975
400 amp		2.60	6.154		1,475	315			1,790	2,075
600 amp		2.20	7.273		1,475	375			1,850	2,150
800 amp		2	8		1,675	410			2,085	2,475
1000 amp		1.60	10		1,800	515			2,315	2,775
1350 amp		1.40	11.429		2,150	590			2,740	3,225
1600 amp		1.20	13.333		2,400	685			3,085	3,650
2000 amp		1	16		2,675	825			3,500	4,175
Switchboard stub, 225 amp		5.40	2.963		1,350	153			1,503	1,700
400 amp		4.60	3.478		1,350	179			1,529	1,750
600 amp		4	4		1,350	206			1,556	1,775
800 amp		3.20	5		1,625	258			1,883	2,175
1000 amp		3	5.333		1,900	275			2,175	2,475
1350 amp		2.60	6.154		2,325	315			2,640	3,025
1600 amp		2.40	6.667		2,625	345			2,970	3,400
2000 amp		2	8		3,175	410			3,585	4,100
Tee fittings, 225 amp		2.40	6.667		1,825	345			2,170	2,550
400 amp		2	8		1,825	410			2,235	2,650
600 amp		1.80	8.889		1,825	460			2,285	2,700
800 amp		1.60	10		2,125	515			2,640	3,100
1350 amp		1.20	13.333		2,900	685			3,585	4,200
1600 amp		1	16		3,300	825			4,125	4,850
2000 amp		.80	20		3,900	1,025			4,925	5,850
Plug-in fusible switches w/3 fuses, 600 volt, 3 pole, 30 amp	1 Elec	4	2		820	103			923	1,050
60 amp		3.60	2.222		925	115			1,040	1,200
100 amp		2.70	2.963		1,400	153			1,553	1,775
200 amp	2 Elec	3.20	5		2,525	258			2,783	3,150
400 amp		1.40	11.429		7,375	590			7,965	8,975
600 amp		.90	17.778		8,375	915			9,290	10,600
800 amp		.66	24.242		11,700	1,250			12,950	14,800
1200 amp		.50	32		22,000	1,650			23,650	26,700
Plug-in circuit breakers, molded case, 15 to 50 amp	1 Elec	4.40	1.818		780	93.50			873.50	995
70 to 100 amp	"	3.10	2.581		865	133			998	1,150
150 to 225 amp	2 Elec	3.40	4.706		2,350	243			2,593	2,950
250 to 400 amp		1.40	11.429		4,100	590			4,690	5,400
500 to 600 amp		1	16		5,550	825			6,375	7,325
700 to 800 amp		.64	25		6,850	1,300			8,150	9,450
900 to 1000 amp		.56	28.571		9,800	1,475			11,275	13,000
1200 amp		.44	36.364		11,800	1,875			13,675	15,800

26 27 Low-Voltage Distribution Equipment

26 27 16 – Electrical Cabinets and Enclosures

26 27 16.10 Cabinets		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	To
							Labor	Equipment		bed
0010	CABINETS									
7000	Cabinets, current transformer									
7050	Single door, 24" H x 24" W x 10" D	1 Elec	1.60	5	Eo.	134	258		392	
7100	30" H x 24" W x 10" D		1.30	6.154		137	315		452	
7150	36" H x 24" W x 10" D		1.10	7.273		140	375		515	
7200	30" H x 30" W x 10" D		1	8		146	410		556	
7250	36" H x 30" W x 10" D		.90	8.889		198	460		658	
7300	36" H x 36" W x 10" D		.80	10		211	515		726	
7500	Double door, 48" H x 36" W x 10" D		.60	13.333		435	685		1,120	
7550	24" H x 24" W x 12" D		1	8		178	410		588	

26 27 23 – Indoor Service Poles

26 27 23.40 Surface Raceway

0010	SURFACE RACEWAY									
0090	Metal, straight section									
0100	No. 500	1 Elec	100	.080	L.F.	1.03	4.12		5.15	
0110	No. 700		100	.080		1.16	4.12		5.28	
0400	No. 1500, small pancake		90	.089		2.08	4.58		6.66	
0600	No. 2000, base & cover, blank		90	.089		2.13	4.58		6.71	
0800	No. 3000, base & cover, blank		75	.107		4.10	5.50		9.60	
1000	No. 4000, base & cover, blank		65	.123		6.70	6.35		13.05	
1200	No. 6000, base & cover, blank		50	.160		11.10	8.25		19.35	
2400	Fittings, elbows, No. 500		40	.200	Eo.	1.85	10.30		12.15	
2800	Elbow cover, No. 2000		40	.200		3.50	10.30		13.80	
2880	Tee, No. 500		42	.190		3.56	9.80		13.36	
2900	No. 2000		27	.296		11.70	15.25		26.95	
3000	Switch box, No. 500		16	.500		12.40	26		38.40	
3400	Telephone outlet, No. 1500		16	.500		14.55	26		40.55	
3600	Junction box, No. 1500		16	.500		9.95	26		35.95	
3800	Plugmold wired sections, No. 2000									
4000	1 circuit, 6 outlets, 3 ft. long	1 Elec	8	1	Eo.	36	51.50		87.50	
4100	2 circuits, 8 outlets, 6 ft. long	"	5.30	1.509	"	59.50	78		137.50	

26 27 26 – Wiring Devices

26 27 26.10 Low Voltage Switching

0010	LOW VOLTAGE SWITCHING									
3600	Relays, 120 V or 277 V standard	1 Elec	12	.667	Eo.	41	34.50		75.50	
3800	Flush switch, standard		40	.200		11.30	10.30		21.60	
4000	Interchangeable		40	.200		14.75	10.30		25.05	
4100	Surface switch, standard		40	.200		7.95	10.30		18.25	
4200	Transformer 115 V to 25 V		12	.667		128	34.50		162.50	
4400	Master control, 12 circuit, manual		4	2		124	103		227	
4500	25 circuit, motorized		4	2		137	103		240	
4600	Rectifier, silicon		12	.667		44.50	34.50		79	
4800	Switchplates, 1 gang, 1, 2 or 3 switch, plastic		80	.100		4.90	5.15		10.05	
5000	Stainless steel		80	.100		11.15	5.15		16.30	
5400	2 gang, 3 switch, stainless steel		53	.151		22.50	7.80		30.30	
5500	4 switch, plastic		53	.151		10.10	7.80		17.90	
5800	3 gang, 9 switch, stainless steel		32	.250		63.50	12.90		76.40	

26 27 26.20 Wiring Devices Elements

0010	WIRING DEVICES ELEMENTS									
0200	Toggle switch, quiet type, single pole, 15 amp	1 Elec	40	.200	Eo.	5.40	10.30		15.70	
0600	3 way, 15 amp		23	.348		8.20	17.95		26.15	

27 Low-Voltage Distribution Equipment

7 26 – Wiring Devices

26.20 Wiring Devices Elements		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
4 way, 15 amp		1 Elec	15	.533	Ea.	14.80	27.50		42.30	57.50
Dimmer switch, 120 volt, incandescent, 600 watt, 1 pole	G		16	.500		14	26		40	54
Receptacle, duplex, 120 volt, grounded, 15 amp			40	.200		1.42	10.30		11.72	16.95
20 amp			27	.296		10.95	15.25		26.20	35
Dryer, 30 amp			15	.533		6.75	27.50		34.25	48.50
Range, 50 amp			11	.727		15	37.50		52.50	72.50
Wall plates, stainless steel, 1 gang			80	.100		2.50	5.15		7.65	10.45
2 gang			53	.151		4.25	7.80		12.05	16.35
Lampholder, keyless			26	.308		13.60	15.85		29.45	38.50
Pullchain with receptacle			22	.364		20	18.75		38.75	50

7 73 – Door Chimes

73.10 Doorbell System

DOORBELL SYSTEM, incl. transformer, button & signal										
6" bell		1 Elec	4	2	Ea.	112	103		215	277
Buzzer		"	4	2	"	89.50	103		192.50	252

28 Low-Voltage Circuit Protective Devices

8 16 – Enclosed Switches and Circuit Breakers

16.10 Circuit Breakers

CIRCUIT BREAKERS (in enclosure)										
Encased (NEMA 1), 600 volt, 3 pole, 30 amp		1 Elec	3.20	2.500	Ea.	485	129		614	730
60 amp			2.80	2.857		600	147		747	875
100 amp			2.30	3.478		685	179		864	1,025
225 amp			1.50	5.333		1,575	275		1,850	2,150
400 amp		2 Elec	1.60	10		2,700	515		3,215	3,750
600 amp			1.20	13.333		3,900	685		4,585	5,325
800 amp			.94	17.021		5,100	875		5,975	6,900

16.20 Safety Switches

SAFETY SWITCHES										
General duty 240 volt, 3 pole NEMA 1, fusible, 30 amp		1 Elec	3.20	2.500	Ea.	119	129		248	325
60 amp			2.30	3.478		202	179		381	490
100 amp			1.90	4.211		345	217		562	705
200 amp			1.30	6.154		745	315		1,060	1,300
400 amp		2 Elec	1.80	8.889		1,875	460		2,335	2,750
600 amp		"	1.20	13.333		3,500	685		4,185	4,875
Heavy duty, 240 volt, 3 pole NEMA 1 fusible										
30 amp		1 Elec	3.20	2.500	Ea.	192	129		321	405
60 amp			2.30	3.478		325	179		504	630
100 amp			1.90	4.211		515	217		732	890
200 amp			1.30	6.154		880	315		1,195	1,450
400 amp		2 Elec	1.80	8.889		2,250	460		2,710	3,175
600 amp		"	1.20	13.333		3,900	685		4,585	5,300

26 29 Low-Voltage Controllers

26 29 13 – Enclosed Controllers

26 29 13.20 Control Stations		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
0010	CONTROL STATIONS								
0050	NEMA 1, heavy duty, stop/start	1 Elec	8	1	Ea.	135	51.50		186.50
0100	Stop/start, pilot light		6.20	1.290		184	66.50		250.50
0200	Hand/off/automatic		6.20	1.290		100	66.50		166.50
0400	Stop/start/reverse	▼	5.30	1.509	▼	182	78		260

26 32 Packaged Generator Assemblies

26 32 13 – Engine Generators

26 32 13.13 Diesel-Engine-Driven Generator Sets

0010	DIESEL-ENGINE-DRIVEN GENERATOR SETS								
2000	Diesel engine, including battery, charger,								
2010	muffler, automatic transfer switch & day tank, 30 kW	R-3	.55	36.364	Ea.	22,700	1,850	241	24,791
2100	50 kW		.42	47.619		26,900	2,425	315	29,640
2200	75 kW		.35	57.143		34,900	2,925	380	38,205
2300	100 kW		.31	64.516		38,800	3,300	425	42,525
2400	125 kW		.29	68.966		40,900	3,525	455	44,880
2500	150 kW		.26	76.923		46,900	3,925	510	51,335
2600	175 kW		.25	80		51,000	4,075	530	55,605
2700	200 kW		.24	83.333		52,500	4,250	550	57,300
2800	250 kW		.23	86.957		62,000	4,425	575	67,000
2900	300 kW		.22	90.909		67,000	4,625	600	72,225
3000	350 kW		.20	100		76,000	5,100	660	81,760
3100	400 kW		.19	105		93,500	5,375	695	99,570
3200	500 kW	▼	.18	111	▼	118,000	5,675	735	124,410

26 32 13.16 Gas-Engine-Driven Generator Sets

0010	GAS-ENGINE-DRIVEN GENERATOR SETS								
0020	Gas or gasoline operated, includes battery,								
0050	charger, muffler & transfer switch								
0200	3 phase 4 wire, 277/480 volt, 7.5 kW	R-3	.83	24.096	Ea.	8,550	1,225	160	9,935
0300	11.5 kW		.71	28.169		12,100	1,425	186	13,711
0400	20 kW		.63	31.746		14,300	1,625	210	16,135
0500	35 kW		.55	36.364		17,000	1,850	241	19,091
0600	80 kW		.40	50		27,900	2,550	330	30,780
0700	100 kW		.33	60.606		30,600	3,100	400	34,100
0800	125 kW		.28	71.429		62,500	3,650	475	66,625
0900	185 kW	▼	.25	80	▼	83,000	4,075	530	87,605

26 35 Power Filters and Conditioners

26 35 13 – Capacitors

26 35 13.10 Capacitors Indoor

0010	CAPACITORS INDOOR								
0020	240 volts, single & 3 phase, 0.5 kVAR	1 Elec	2.70	2.963	Ea.	395	153		548
0100	1.0 kVAR		2.70	2.963		475	153		628
0150	2.5 kVAR		2	4		535	206		741
0200	5.0 kVAR		1.80	4.444		640	229		869
0250	7.5 kVAR		1.60	5		745	258		1,003
0300	10 kVAR		1.50	5.333		900	275		1,175
0350	15 kVAR		1.30	6.154		1,225	315		1,540
0400	20 kVAR	▼	1.10	7.273	▼	1,550	375		1,925

35 Power Filters and Conditioners

5 13 - Capacitors

13.10 Capacitors Indoor

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bore Costs Labor	Equipment	Total	Total Incl O&P
25 kVAR	1 Elec	1	8	Eq.	1,800	410		2,210	2,625
480 volts, single & 3 phase, 1 kVAR		2.70	2.963		360	153		513	625
2 kVAR		2.70	2.963		415	153		568	685
5 kVAR		2	4		520	206		726	885
7.5 kVAR		2	4		560	206		766	930
10 kVAR		2	4		630	206		836	1,000
15 kVAR		2	4		775	206		981	1,175
20 kVAR		1.60	5		865	258		1,123	1,325
30 kVAR		1.50	5.333		1,075	275		1,350	1,600
40 kVAR		1.20	6.667		1,375	345		1,720	2,050
50 kVAR		1.10	7.273		1,575	375		1,950	2,275

42 Cathodic Protection

2 16 - Passive Cathodic Protection for Underground Storage Tank

16.50 Cathodic Protection Wiring Methods

CATHODIC PROTECTION WIRING METHODS

Anodes, magnesium type, 9 #	R-15	18.50	2.595	Eq.	38.50	131	17.50	187	258
17 #		13	3.692		70	186	25	281	385
32 #		10	4.800		122	242	32.50	396.50	535
48 #		7.20	6.667		160	335	45	540	730
Graphite type w/epoxy cap, 3" x 60" (32 #)	R-22	8.40	4.438		125	194		319	430
4" x 80" (68 #)		6	6.213		237	272		509	670
6" x 72" (80 #)		5.20	7.169		1,475	315		1,790	2,100
6" x 36" (45 #)		9.60	3.883		745	170		915	1,075
Rectifiers, silicon type, air cooled, 28 V/10 A	R-19	3.50	5.714		2,275	295		2,570	2,950
20 V/20 A		3.50	5.714		2,325	295		2,620	3,000
Oil immersed, 28 V/10 A		3	6.667		3,100	345		3,445	3,925
20 V/20 A		3	6.667		3,125	345		3,470	3,950
Anode backfill, coke breeze	R-22	3850	.010	Lb.	.22	.42		.64	.88
Cable, HMWPE, No. 8		2.40	15.533	M.L.F.	490	680		1,170	1,575
No. 6		2.40	15.533		730	680		1,410	1,825
No. 4		2.40	15.533		1,100	680		1,780	2,250
No. 2		2.40	15.533		1,725	680		2,405	2,925
No. 1		2.20	16.945		2,350	740		3,090	3,725
No. 1/0		2.20	16.945		2,925	740		3,665	4,325
No. 2/0		2.20	16.945		4,525	740		5,265	6,125
No. 4/0		2	18.640		5,875	815		6,690	7,700
Test station, 7 terminal box, flush curb type w/lockable cover	R-19	12	1.667	Eq.	70.50	86		156.50	207
Reference cell, 2" dia PVC conduit, cplg., plug, set flush	"	4.80	4.167	"	148	215		363	485

26 51 Interior Lighting

26 51 13 - Interior Lighting Fixtures, Lamps, and Ballasts

26 51 13.50 Interior Lighting Fixtures		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Ta
							Labor	Equipment		lec
0010	INTERIOR LIGHTING FIXTURES Including lamps, mounting									
0030	hardware and connections									
0100	Fluorescent, C.W. lamps, traffer, recess mounted in grid, RS									
0130	Grid ceiling mount									
0200	Acrylic lens, 1'W x 4'L, two 40 watt	1 Elec	5.70	1.404	Ea.	54	72.50		126.50	
0210	1'W x 4'L, three 40 watt		5.40	1.481		62.50	76.50		139	
0300	2'W x 2'L, two U40 watt		5.70	1.404		59.50	72.50		132	
0400	2'W x 4'L, two 40 watt		5.30	1.509		58	78		136	
0500	2'W x 4'L, three 40 watt		5	1.600		64	82.50		146.50	
0600	2'W x 4'L, four 40 watt		4.70	1.702		67	87.50		154.50	
0700	4'W x 4'L, four 40 watt	2 Elec	6.40	2.500		340	129		469	
0800	4'W x 4'L, six 40 watt		6.20	2.581		350	133		483	
0900	4'W x 4'L, eight 40 watt		5.80	2.759		365	142		507	
0910	Acrylic lens, 1'W x 4'L, two 32 watt T8	G 1 Elec	5.70	1.404		67	72.50		139.50	
0930	2'W x 2'L, two U32 watt T8	G	5.70	1.404		80	72.50		152.50	
0940	2'W x 4'L, two 32 watt T8	G	5.30	1.509		72.50	78		150.50	
0950	2'W x 4'L, three 32 watt T8	G	5	1.600		76.50	82.50		159	
0960	2'W x 4'L, four 32 watt T8	G	4.70	1.702		78.50	87.50		166	
1000	Surface mounted, RS									
1030	Acrylic lens with hinged & latched door frame									
1100	1'W x 4'L, two 40 watt	1 Elec	7	1.143	Ea.	74	59		133	
1110	1'W x 4'L, three 40 watt		6.70	1.194		76.50	61.50		138	
1200	2'W x 2'L, two U40 watt		7	1.143		79.50	59		138.50	
1300	2'W x 4'L, two 40 watt		6.20	1.290		91	66.50		157.50	
1400	2'W x 4'L, three 40 watt		5.70	1.404		92	72.50		164.50	
1500	2'W x 4'L, four 40 watt		5.30	1.509		94.50	78		172.50	
1600	4'W x 4'L, four 40 watt	2 Elec	7.20	2.222		465	115		580	
1700	4'W x 4'L, six 40 watt		6.60	2.424		505	125		630	
1800	4'W x 4'L, eight 40 watt		6.20	2.581		525	133		658	
1900	2'W x 8'L, four 40 watt		6.40	2.500		185	129		314	
2000	2'W x 8'L, eight 40 watt		6.20	2.581		199	133		332	
2100	Strip fixture									
2130	Surface mounted									
2200	4' long, one 40 watt, RS	1 Elec	8.50	.941	Ea.	27	48.50		75.50	
2300	4' long, two 40 watt, RS		8	1		38	51.50		89.50	
2400	4' long, one 40 watt, SL		8	1		46	51.50		97.50	
2500	4' long, two 40 watt, SL		7	1.143		62.50	59		121.50	
2600	8' long, one 75 watt, SL	2 Elec	13.40	1.194		47	61.50		108.50	
2700	8' long, two 75 watt, SL	"	12.40	1.290		57	66.50		123.50	
2800	4' long, two 60 watt, HO	1 Elec	6.70	1.194		91.50	61.50		153	
2900	8' long, two 110 watt, HO	2 Elec	10.60	1.509		96.50	78		174.50	
2950	High bay pendant mounted, 16" W x 4' L, four 54 watt, T5HO	G	8.90	1.798		224	92.50		316.50	
2952	2' W x 4' L, six 54 watt, T5HO	G	8.50	1.882		300	97		397	
2954	2' W x 4' L, six 32 watt, T8	G	8.50	1.882		175	97		272	
3000	Strip, pendant mounted, industrial, white porcelain enamel									
3100	4' long, two 40 watt, RS	1 Elec	5.70	1.404	Ea.	52	72.50		124.50	
3200	4' long, two 60 watt, HO	"	5	1.600		81	82.50		163.50	
3300	8' long, two 75 watt, SL	2 Elec	8.80	1.818		96	93.50		189.50	
3400	8' long, two 110 watt, HO	"	8	2		123	103		226	
3470	Traffer, air handling, 2'W x 4'L with four 32 watt T8	G 1 Elec	4	2		110	103		213	
3480	2'W x 2'L with two U32 watt T8	G	5.50	1.455		106	75		181	
3490	Air connector insulated, 5" diameter		20	.400		66	20.50		86.50	
3500	6" diameter		20	.400		67.50	20.50		88	

51 Interior Lighting

13 – Interior Lighting Fixtures, Lamps, and Ballasts

13.50 Interior Lighting Fixtures		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
5110	Troffer parabolic lay-in, 1'W x 4'L with one 32 W T8	[G] 1 Elec	5.70	1.404	Eo.	112	72.50		184.50	231
5120	1'W x 4'L with two 32 W T8	[G]	5.30	1.509		134	78		212	263
5125	2'W x 2'L with two U32 W T8	[G]	5.70	1.404		113	72.50		185.50	232
5130	2'W x 4'L with three 32 W T8	[G]	5	1.600		125	82.50		207.50	261
4150	Incandescent, high hot con, round alzak reflector, prewired									
4170	100 watt	1 Elec	8	1	Eo.	70	51.50		121.50	154
4180	150 watt		8	1		102	51.50		153.50	189
5130	300 watt		6.70	1.194		236	61.50		297.50	350
6170	Square glass lens with metal trim, prewired									
6180	100 watt	1 Elec	6.70	1.194	Eo.	54	61.50		115.50	152
7130	200 watt		6.70	1.194		95	61.50		156.50	197
7130	300 watt		5.70	1.404		142	72.50		214.50	264
7100	Ceiling/wall, surface mounted, metal cylinder, 75 watt		10	.800		55	41		96	122
7100	150 watt		10	.800		79	41		120	149
7100	Ceiling, surface mounted, opal glass drum									
3000	8", one 60 watt lamp	1 Elec	10	.800	Eo.	43.50	41		84.50	110
4000	10", two 60 watt lamps		8	1		49	51.50		100.50	131
5000	12", four 60 watt lamps		6.70	1.194		69	61.50		130.50	168
1000	Vapor tight, incandescent, ceiling mounted, 200 watt		6.20	1.290		81	66.50		147.50	189
1000	Fluorescent, surface mounted, 2 lamps, 4'L, RS, 40 watt		3.20	2.500		113	129		242	315
1000	Vandalproof, surface mounted, fluorescent, two 32 watt T8	[G]	3.20	2.500		248	129		377	465
1000	Incandescent, one 150 watt		8	1		84	51.50		135.50	170
1000	Ballast replacement, by weight of ballast, to 15' high									
5200	Indoor fluorescent, less than 2 lb.	1 Elec	10	.800	Eo.	25.50	41		66.50	89.50
5400	Two 40W, watt reducer, 2 to 5 lb.		9.40	.851		40.50	44		84.50	110
5400	Two F96 slimline, over 5 lb.		8	1		75.50	51.50		127	160
5400	Vaporite ballast, less than 2 lb.		9.40	.851		25.50	44		69.50	93.50
5400	2 lb. to 5 lb.		8.90	.899		40.50	46.50		87	114
5400	Over 5 lb.		7.60	1.053		75.50	54.50		130	164
5400	Electronic ballast for two tubes		8	1		36.50	51.50		88	117
5400	Dimmable ballast one lamp	[G]	8	1		104	51.50		155.50	191
5400	Dimmable ballast two-lamp	[G]	7.60	1.053		102	54.50		156.50	193

52 Emergency Lighting

13 – Emergency Lighting Equipments

13.10 Emergency Lighting and Battery Units										
EMERGENCY LIGHTING AND BATTERY UNITS										
5200	Emergency light units, battery operated									
5200	Twin sealed beam light, 25 watt, 6 volt each									
5200	Lead battery operated	1 Elec	4	2	Eo.	124	103		227	290
5200	Nickel cadmium battery operated		4	2		560	103		663	770
5200	Self-contained fluorescent lamp pack		10	.800		154	41		195	231

26 53 Exit Signs

26 53 13 – Exit Lighting

26 53 13.10 Exit Lighting Fixtures		Crew	Daily Output	Labor Hours	Unit	Material	2012 Base Costs		Total	Ta
EXIT LIGHTING FIXTURES							Labor	Equipment		bed
0010	EXIT LIGHTING FIXTURES									
0080	Exit light ceiling or wall mount, incandescent, single face	1 Elec	8	1	Ea.	38	51.50		89.50	
0100	Double face		6.70	1.194		38	61.50		99.50	
0200	L.E.D. standard, single face	G	8	1		74.50	51.50		126	
0220	Double face	G	6.70	1.194		74.50	61.50		136	
0230	L.E.D. vandal-resistant, single face	G	7.27	1.100		223	56.50		279.50	
0240	L.E.D. w/battery unit, single face	G	4.40	1.818		128	93.50		221.50	
0260	Double face	G	4	2		130	103		233	
0262	L.E.D. w/battery unit, vandal-resistant, single face	G	4.40	1.818		370	93.50		463.50	
0270	Combination emergency light units and exit sign		4	2		195	103		298	

26 54 Classified Location Lighting

26 54 13 – Classified Lighting

26 54 13.20 Explosionproof

0010	EXPLOSIONPROOF, incl lamps, mounting hardware and connections									
6510	Incandescent, ceiling mounted, 200 watt	1 Elec	4	2	Ea.	1,050	103		1,153	
6600	Fluorescent, RS, 4' long, ceiling mounted, two 40 watt	"	2.70	2.963	"	2,800	153		2,953	

26 55 Special Purpose Lighting

26 55 61 – Theatrical Lighting

26 55 61.10 Lights

0010	LIGHTS									
2000	Lights, barker, quartz, reflector, vented, colored or white	1 Elec	20	400	L.F.	173	20.50		193.50	
2100		"	4	2	Ea.	3,075	103		3,178	
2500	Spotlight, follow spot, with transformer, 2,100 watt					910			910	
2600	For no transformer, deduct									
3000	Stationary spot, fresnel quartz, 6" lens	1 Elec	4	2		131	103		234	
3100	8" lens		4	2		231	103		334	
3500	Ellipsoidal quartz, 1,000W, 6" lens		4	2		335	103		438	
3600	12" lens		4	2		600	103		703	
4000	Strobe light, 1 to 15 flashes per second, quartz		3	2.667		750	137		887	
4500	Color wheel, portable, five hole, motorized		4	2		194	103		297	

26 56 Exterior Lighting

26 56 13 – Lighting Poles and Standards

26 56 13.10 Lighting Poles

0010	LIGHTING POLES									
2800	Light poles, anchor base									
2820	not including concrete bases									
2840	Aluminum pole, 8' high	1 Elec	4	2	Ea.	680	103		783	
3000	20' high	R-3	2.90	6.897		900	350	45.50	1,295.50	
3200	30' high		2.60	7.692		1,650	390	51	2,091	
3400	35' high		2.30	8.696		1,875	445	57.50	2,377.50	
3600	40' high		2	10		2,125	510	66	2,701	
3800	Bracket arms, 1 arm	1 Elec	8	1		122	51.50		173.50	
4000	2 arms		8	1		245	51.50		296.50	
4200	3 arms		5.30	1.509		380	78		458	

56 Exterior Lighting

6 13 – Lighting Poles and Standards

6 13.10 Lighting Poles	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
4 arms	1 Elec	5.30	1.509	Ea.	505	78		583	670
Steel pole, galvanized, 8' high	↓	3.80	2.105		610	109		719	830
20' high	R-3	2.60	7.692		1,075	390	51	1,516	1,850
30' high		2.30	8.696		1,175	445	57.50	1,677.50	2,000
35' high		2.20	9.091		1,375	465	60	1,900	2,275
40' high	↓	1.70	11.765		1,700	600	78	2,378	2,850
Bracket arms, 1 arm	1 Elec	8	1		172	51.50		223.50	266
2 arms		8	1		267	51.50		318.50	370
3 arms		5.30	1.509		289	78		367	435
4 arms	↓	5.30	1.509	↓	400	78		478	560

6 19 – Roadway Lighting

6 19.20 Roadway Area Luminaire

ROADWAY AREA LUMINAIRE									
Roadway area luminaire, low pressure sodium, 135 watt	1 Elec	2	4	Ea.	625	206		831	995
180 watt	"	2	4		660	206		866	1,025
Metal halide, 400 watt	2 Elec	4.40	3.636		535	187		722	870
1000 watt		4	4		605	206		811	975
High pressure sodium, 400 watt		4.40	3.636		555	187		742	890
1000 watt	↓	4	4	↓	635	206		841	1,000

6 23 – Area Lighting

6 23.10 Exterior Fixtures

EXTERIOR FIXTURES With lamps									
Wall mounted, incandescent, 100 watt	1 Elec	8	1	Ea.	33	51.50		84.50	114
Quartz, 500 watt		5.30	1.509		57.50	78		135.50	180
Wall pack, low pressure sodium, 35 watt		4	2		221	103		324	395
55 watt	↓	4	2	↓	262	103		365	440

6 36 – Flood Lighting

6 36.20 Floodlights

FLOODLIGHTS with ballast and lamp,									
Pole mounted, pole not included									
Metal halide, 175 watt	1 Elec	2.70	2.963	Ea.	325	153		478	590
400 watt	2 Elec	4.40	3.636		405	187		592	725
1000 watt	"	4	4		555	206		761	920
High pressure sodium, 70 watt	1 Elec	2.70	2.963		245	153		398	500
400 watt	2 Elec	4.40	3.636		365	187		552	680
1000 watt	"	4	4	↓	625	206		831	1,000

61 Lighting Systems and Accessories

61 23 – Lamps Applications

61 23.10 Lamps

LAMPS									
Fluorescent, rapid start, cool white, 2' long, 20 watt	1 Elec	1	8	C	370	410		780	1,025
4' long, 40 watt		.90	8.889		315	460		775	1,025
Slimline, 4' long, 40 watt		.90	8.889		895	460		1,355	1,675
4' long, 30 watt energy saver	[G]	.90	8.889		895	460		1,355	1,675
High output, 4' long, 60 watt		.90	8.889		1,025	460		1,485	1,800
8' long, 95 watt energy saver	[G]	.80	10		1,025	515		1,540	1,925
8' long, 110 watt		.80	10		1,025	515		1,540	1,925
2' long, T5, 14 watt energy saver	[G]	1	8	↓	1,400	410		1,810	2,175

26 61 Lighting Systems and Accessories

26 61 23 – Lamps Applications

26 61 23.10 Lamps			Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	To Incl
								Labor	Equipment		
0514	3' long, T5, 21 watt energy saver	G	1 Elec	.90	8.889	C	1,400	460		1,860	
0516	4' long, T5, 28 watt energy saver	G		.90	8.889		1,225	460		1,685	
0517	4' long, T5, 54 watt energy saver	G		.90	8.889		1,775	460		2,235	
0560	Twin tube compact lamp	G		.90	8.889		585	460		1,045	
0570	Double twin tube compact lamp	G		.80	10		1,300	515		1,815	
0600	Mercury vapor, mogul base, deluxe white, 100 watt			.30	26.667		3,175	1,375		4,550	
0700	250 watt			.30	26.667		4,900	1,375		6,275	
0800	400 watt			.30	26.667		7,050	1,375		8,425	
0900	1000 watt			.20	40		9,200	2,050		11,250	
1000	Metal halide, mogul base, 175 watt			.30	26.667		4,175	1,375		5,550	
1200	400 watt			.30	26.667		7,775	1,375		9,150	
1300	1000 watt			.20	40		10,800	2,050		12,850	
1350	High pressure sodium, 70 watt			.30	26.667		5,050	1,375		6,425	
1380	250 watt			.30	26.667		5,750	1,375		7,125	
1400	400 watt			.30	26.667		5,900	1,375		7,275	
1450	1000 watt			.20	40		16,300	2,050		18,350	
3000	Guards, fluorescent lamp, 4' long			1	8		1,175	410		1,585	
3200	8' long			.90	8.889		2,325	460		2,785	

26 71 Electrical Machines

26 71 13 – Motors Applications

26 71 13.20 Motors

0010	MOTORS 230/460 volts, 60 HZ										
0050	Drip-proof, premium efficiency, 1.15 service factor										
0060	1800 RPM, 1/4 HP		1 Elec	5.33	1.501	Eq.	188	77.50		265.50	
0070	1/3 HP			5.33	1.501		193	77.50		270.50	
0080	1/2 HP			5.33	1.501		288	77.50		365.50	
0090	3/4 HP			5.33	1.501		320	77.50		397.50	
0100	1 HP			4.50	1.778		330	91.50		421.50	
0250	5 HP			4.50	1.778		455	91.50		546.50	
0350	10 HP			4	2		720	103		823	
0450	20 HP		2 Elec	5.20	3.077		1,150	159		1,309	

Estimating Tips

70 00 Data
Communications

70 00 Voice
Communications

70 00 Audio-Video
Communications

When estimating material costs for special systems, it is always best to obtain manufacturers' quotations for equipment prices and special installation requirements which will affect the total costs.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

Division 27 - Communications

Note: Trade Service, in part, has been used as a reference source for some of the material prices used in Division 27.

27 13 Communications Backbone Cabling

27 13 23 – Communications Optical Fiber Backbone Cabling

27 13 23.13 Communications Optical Fiber		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	To
							Labor	Equipment		Base
0010	COMMUNICATIONS OPTICAL FIBER									
0040	Specialized tools & techniques cause installation costs to vary.									
0070	Fiber optic, cable, bulk simplex, minimum	1 Elec	8	1	C.L.F.	23	51.50		74.50	
0080	Bulk plenum quad, maximum	"	2.29	3.493	"	68	180		248	
0150	Jumper				Eq.	34.50			34.50	
0200	Pigtail					31			31	
0300	Connector	1 Elec	24	.333		20	17.20		37.20	
0350	Finger splice		32	.250		32	12.90		44.90	
0400	Transceiver (low cost bi-directional)		8	1		410	51.50		461.50	
0450	Rock housing, 4 rock spaces, 12 panels (144 fibers)		2	4		490	206		696	
0500	Patch panel, 12 ports	↓	6	1.333	↓	242	68.50		310.50	

27 41 Audio-Video Systems

27 41 19 – Portable Audio-Video Equipment

27 41 19.10 T.V. Systems

0010	T.V. SYSTEMS , not including rough-in wires, cables & conduits									
0100	Master TV antenna system									
0200	VHF reception & distribution, 12 outlets	1 Elec	6	1.333	Outlet	136	68.50		204.50	
0400	30 outlets		10	.800		174	41		215	
0600	100 outlets		13	.615		146	31.50		177.50	
0800	VHF & UHF reception & distribution, 12 outlets		6	1.333		205	68.50		273.50	
1000	30 outlets		10	.800		138	41		179	
1200	100 outlets		13	.615		136	31.50		167.50	
1400	School and deluxe systems, 12 outlets		2.40	3.333		270	172		442	
1600	30 outlets		4	2		237	103		340	
1800	80 outlets	↓	5.30	1.509	↓	227	78		305	

27 51 Distributed Audio-Video Communications Systems

27 51 16 – Public Address and Mass Notification Systems

27 51 16.10 Public Address System

0010	PUBLIC ADDRESS SYSTEM									
0100	Conventional, office	1 Elec	5.33	1.501	Speaker	131	77.50		208.50	
0200	Industrial	"	2.70	2.963	"	254	153		407	

27 51 19 – Sound Masking Systems

27 51 19.10 Sound System

0010	SOUND SYSTEM , not including rough-in wires, cables & conduits									
0100	Components, projector outlet	1 Elec	8	1	Eq.	57	51.50		108.50	
0200	Microphone		4	2		78	103		181	
0400	Speakers, ceiling or wall		8	1		115	51.50		166.50	
0600	Trumpets		4	2		213	103		316	
0800	Privacy switch		8	1		85	51.50		136.50	
1000	Monitor panel		4	2		380	103		483	
1200	Antenna, AM/FM		4	2		132	103		235	
1400	Volume control		8	1		86	51.50		137.50	
1600	Amplifier, 250 watts		1	8		1,225	410		1,635	
1800	Cabinets	↓	1	8		825	410		1,235	
2000	Intercom, 30 station capacity, master station	2 Elec	2	8		2,250	410		2,660	
2200	Remote station	1 Elec	8	1		159	51.50		210.50	
2400	Intercom outlets	↓	8	1	↓	93.50	51.50		145	

51 Distributed Audio-Video Communications Systems

51.19 – Sound Masking Systems

19.10 Sound System		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
Handset	1 Elec	4	2	Ea.	310	103			413	495
Emergency call system, 12 zones, annunciator		1.30	6.154		935	315			1,250	1,500
Bell		5.30	1.509		96.50	78			174.50	222
Light or relay		8	1		48	51.50			99.50	130
Transformer		4	2		212	103			315	385
House telephone, talking station		1.60	5		455	258			713	885
Press to talk, release to listen	▼	5.30	1.509		106	78			184	233
System-on button					63.50				63.50	70
Door release	1 Elec	4	2		113	103			216	279
Combination speaker and microphone		8	1		193	51.50			244.50	289
Termination box		3.20	2.500		61	129			190	260
Amplifier or power supply		5.30	1.509	▼	700	78			778	885
Vestibule door unit		16	.500	Name	128	26			154	180
Strip cabinet		27	.296	Ea.	242	15.25			257.25	290
Directory	▼	16	.500	"	114	26			140	164

52 Healthcare Communications and Monitoring Systems

52.23 – Nurse Call/Code Blue Systems

23.10 Nurse Call Systems										
NURSE CALL SYSTEMS										
Single bedside call station	1 Elec	8	1	Ea.	226	51.50			277.50	325
Ceiling speaker station		8	1		63.50	51.50			115	147
Emergency call station		8	1		68	51.50			119.50	152
Pillow speaker		8	1		167	51.50			218.50	261
Double bedside call station		4	2		135	103			238	305
Duty station		4	2		145	103			248	315
Standard call button		8	1		82	51.50			133.50	168
Lights, corridor, dome or zone indicator	▼	8	1	▼	46.50	51.50			98	128
Master control station for 20 stations	2 Elec	.65	24.615	Total	3,900	1,275			5,175	6,200

53 Distributed Systems

53.13 – Clock Systems

13.50 Clock Equipments										
CLOCK EQUIPMENTS, not including wires & conduits										
Time system components, master controller	1 Elec	.33	24.242	Ea.	1,825	1,250			3,075	3,875
Program bell		8	1		85	51.50			136.50	171
Combination clock & speaker		3.20	2.500		210	129			339	425
Frequency generator		2	4		2,350	206			2,556	2,900
Job time automatic stamp recorder	▼	4	2		460	103			563	660
Master time clock system, clocks & bells, 20 room	4 Elec	.20	160		6,300	8,250			14,550	19,200
50 room	"	.08	400		13,000	20,600			33,600	45,100
Time clock, 100 cards in & out, 1 color	1 Elec	3.20	2.500		840	129			969	1,125
2 colors		3.20	2.500		840	129			969	1,125
Metal rack for 25 cards	▼	7	1.143	▼	39	59			98	131

Division Notes

[illegible]

Estimating Tips

When estimating material costs for electronic safety and security systems, it is always prudent to obtain manufacturers' quotations for equipment prices and special installation requirements that affect the total cost.

Fire alarm systems consist of control panels, annunciator panels, battery with rack, charger, and fire alarm pulsating and indicating devices. Some fire alarm systems include speakers, telephone lines, door closer controls, and other components. Be careful not to overlook the costs related to installation for these items.

Also be aware of costs for integrated automation instrumentation and terminal devices, control equipment, control wiring, and programming.

- Security equipment includes items such as CCTV, access control, and other detection and identification systems to perform alert and alarm functions. Be sure to consider the costs related to installation for this security equipment, such as for integrated automation instrumentation and terminal devices, control equipment, control wiring, and programming.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

28 13 Access Control

28 13 53 – Security Access Detection

28 13 53.13 Security Access Metal Detectors		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	To Incl
0010	SECURITY ACCESS METAL DETECTORS									
0240	Metal detector, hand-held, wand type, unit only				Ea.	89			89	
0250	Metal detector, walk through portal type, single zone	1 Elec	2	4		3,150	206		3,356	
0260	Multi-zone	"	2	4		4,000	206		4,206	

28 13 53.16 Security Access X-Ray Equipment

0010	SECURITY ACCESS X-RAY EQUIPMENT									
0290	X-ray machine, desk top, for mail/small packages/letters	1 Elec	4	2	Ea.	3,350	103		3,453	
0300	Conveyor type, incl monitor, minimum		2	4		15,700	206		15,906	
0310	Maximum		2	4		28,000	206		28,206	
0320	X-ray machine, large unit, for airports, incl monitor, min	2 Elec	1	16		39,200	825		40,025	
0330	Maximum	"	.50	32		67,000	1,650		68,650	

28 13 53.23 Security Access Explosive Detection Equipment

0010	SECURITY ACCESS EXPLOSIVE DETECTION EQUIPMENT									
0270	Explosives detector, walk through portal type	1 Elec	2	4	Ea.	43,300	206		43,506	
0280	Hand-held, battery operated				"				25,500	

28 16 Intrusion Detection

28 16 16 – Intrusion Detection Systems Infrastructure

28 16 16.50 Intrusion Detection

0010	INTRUSION DETECTION , not including wires & conduits									
0100	Burglar alarm, battery operated, mechanical trigger	1 Elec	4	2	Ea.	272	103		375	
0200	Electrical trigger		4	2		325	103		428	
0400	For outside key control, add		8	1		82	51.50		133.50	
0600	For remote signaling circuitry, add		8	1		122	51.50		173.50	
0800	Card reader, flush type, standard		2.70	2.963		910	153		1,063	
1000	Multi-code		2.70	2.963		1,175	153		1,328	
1200	Door switches, hinge switch		5.30	1.509		57.50	78		135.50	
1400	Magnetic switch		5.30	1.509		67.50	78		145.50	
1600	Exit control locks, horn alarm		4	2		270	103		373	
1800	Flashing light alarm		4	2		300	103		403	
2000	Indicating panels, 1 channel		2.70	2.963		360	153		513	
2200	10 channel	2 Elec	3.20	5		1,225	258		1,483	
2400	20 channel		2	8		2,400	410		2,810	
2600	40 channel		1.14	14.035		4,375	725		5,100	
2800	Ultrasonic motion detector, 12 volt	1 Elec	2.30	3.478		225	179		404	
3000	Infrared photoelectric detector	"	4	2		186	103		289	

28 23 Video Surveillance

28 23 13 – Video Surveillance Control and Management Systems

28 23 13.10 Closed Circuit Television System

0010	CLOSED CIRCUIT TELEVISION SYSTEM									
2000	Surveillance, one station (camera & monitor)	2 Elec	2.60	6.154	Total	1,300	315		1,615	
2200	For additional camera stations, add	1 Elec	2.70	2.963	Ea.	735	153		888	
2400	Industrial quality, one station (camera & monitor)	2 Elec	2.60	6.154	Total	2,725	315		3,040	
2600	For additional camera stations, add	1 Elec	2.70	2.963	Ea.	1,650	153		1,803	
2610	For low light, add		2.70	2.963		1,325	153		1,478	
2620	For very low light, add		2.70	2.963		9,825	153		9,978	
2800	For weatherproof camera station, add		1.30	6.154		1,025	315		1,340	
3000	For pan and tilt, add		1.30	6.154		2,650	315		2,965	

23 Video Surveillance

23.13 – Video Surveillance Control and Management Systems

23.13.10 Closed Circuit Television System	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
For zoom lens - remote control, odd, minimum	1 Elec	2	4	Eo.	2,450	206		2,656	2,975
Maximum		2	4		8,925	206		9,131	10,100
For automatic iris for low light, odd		2	4		2,125	206		2,331	2,650
Educational T.V. studio, basic 3 camera system, block & white, electrical & electronic equip. only, minimum	4 Elec	.80	40	Total	12,700	2,050		14,750	17,100
Maximum (full console)		.28	114		54,000	5,900		59,900	68,500
As above, but color system, minimum		.28	114		71,500	5,900		77,400	87,500
Maximum		.12	266		310,500	13,700		324,200	362,000
For film chain, block & white, odd	1 Elec	1	8	Eo.	14,500	410		14,910	16,600
Color, odd		.25	32		17,600	1,650		19,250	21,900
For video recorders, odd, minimum		1	8		3,050	410		3,460	3,975
Maximum	4 Elec	.40	80		25,400	4,125		29,525	34,100

23.23 – Video Surveillance Systems Infrastructure

23.23.50 Video Surveillance Equipments

VIDEO SURVEILLANCE EQUIPMENTS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Video cameras, wireless, hidden in exit signs, clocks, etc, incl receiver	1 Elec	3	2.667	Eo.	106	137		243	320
Accessories for video recorder, single camera		3	2.667		179	137		316	400
For multiple cameras		3	2.667		1,725	137		1,862	2,100
Video cameras, wireless, for under vehicle searching, complete		2	4		9,975	206		10,181	11,300

31 Fire Detection and Alarm

31.23 – Fire Detection and Alarm Annunciation Panels and Fire Stations

31.23.50 Alarm Panels and Devices

ALARM PANELS AND DEVICES, not including wires & conduits	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Fire, alarm control panel									
4 zone	2 Elec	2	8	Eo.	390	410		800	1,050
8 zone		1	16		760	825		1,585	2,050
12 zone		.67	23.988		2,325	1,225		3,550	4,400
Alarm device	1 Elec	8	1		231	51.50		282.50	330
Actuating device		8	1		325	51.50		376.50	435
Battery and rack		4	2		400	103		503	595
Automatic charger		8	1		565	51.50		616.50	700
Signal bell		8	1		71	51.50		122.50	155
Trouble buzzer or manual station		8	1		81	51.50		132.50	166
Strobe and horn		5.30	1.509		148	78		226	278
Fire alarm horn		6.70	1.194		59	61.50		120.50	157
Door holder, electro-magnetic		4	2		99.50	103		202.50	264
Combination holder and closer		3.20	2.500		120	129		249	325
Drill switch		8	1		360	51.50		411.50	470
Master box		2.70	2.963		6,225	153		6,378	7,075
Break glass station		8	1		65.50	51.50		117	149
Remote annunciator, 8 zone lamp		1.80	4.444		203	229		432	565
12 zone lamp	2 Elec	2.60	6.154		325	315		640	835
16 zone lamp	"	2.20	7.273		405	375		780	1,000

31.43 – Fire Detection Sensors

31.43.50 Fire and Heat Detectors

FIRE & HEAT DETECTORS	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Detector, rate of rise	1 Elec	8	1	Eo.	49.50	51.50		101	132

28 31 Fire Detection and Alarm

28 31 46 – Smoke Detection Sensors

28 31 46.50 Smoke Detectors		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total
							Labor	Equipment		
0010	SMOKE DETECTORS									
5200	Smoke detector, ceiling type	1 Elec	6.20	1.290	Ea.	127	66.50			193.50
5400	Duct type	"	3.20	2.500	"	320	129			449

28 33 Gas Detection and Alarm

28 33 33 – Gas Detection Sensors

28 33 33.50 Tank Leak Detection Systems

0010	TANK LEAK DETECTION SYSTEMS Liquid and vapor									
0100	For hydrocarbons and hazardous liquids/vapors									
0120	Controller, data acquisition, incl. printer, modem, RS232 port									
0140	24 channel, for use with all probes				Ea.	4,050				4,050
0160	9 channel, for external monitoring				"	890				890
0200	Probes									
0210	Well monitoring									
0220	Liquid phase detection				Ea.	460				460
0230	Hydrocarbon vapor, fixed position					460				460
0240	Hydrocarbon vapor, float mounted					460				460
0250	Both liquid and vapor hydrocarbon				▼	460				460
0300	Secondary containment, liquid phase									
0310	Pipe trench/manway sump				Ea.	800				800
0320	Double wall pipe and manual sump					800				800
0330	Double wall fiberglass annular space					315				315
0340	Double wall steel tank annular space				▼	325				325
0500	Accessories									
0510	Modem, non-dedicated phone line				Ea.	294				294
0600	Monitoring, internal									
0610	Automatic tank gauge, incl. overfill				Ea.	1,125				1,125
0620	Product line				"	1,125				1,125
0700	Monitoring, special									
0710	Cathodic protection				Ea.	700				700
0720	Annular space chemical monitor				"	955				955

28 39 Mass Notification Systems

28 39 10 – Notification Systems

28 39 10.10 Mass Notification System

0010	MASS NOTIFICATION SYSTEM									
0100	Wireless command center, 10,000 devices	2 Elec	1.33	12.030	Ea.	3,500	620			4,120
0200	Option, email notification					1,700				1,700
0210	Remote device supervision & monitor					2,375				2,375
0300	Antenna VHF or UHF, for medium range	1 Elec	4	2		125	103			228
0310	For high-power transmitter		2	4		650	206			856
0400	Transmitter, 25 watt		4	2		1,975	103			2,078
0410	40 watt		2.66	3.008		2,625	155			2,780
0420	100 watt		1.33	6.015		6,575	310			6,885
0500	Wireless receiver/control module for speaker		8	1		257	51.50			308.50
0600	Desktop paging controller, stand alone	▼	4	2	▼	360	103			463

Estimating Tips

3105 00 Common Work Results for Earthwork

Estimating the actual cost of performing earthwork requires careful consideration of the variables involved. This includes items such as type of soil, whether water will be encountered, dewatering, whether banks need bracing, disposal of excavated earth, and length of haul to fill or spoil piles, etc. If the project has large quantities of cut and fill, consider raising or

lowering the site to reduce costs, while paying close attention to the effect on site drainage and utilities.

- If the project has large quantities of fill, creating a borrow pit on the site can significantly lower the costs.
- It is very important to consider what time of year the project is scheduled for completion. Bad weather can create large cost overruns from dewatering, site repair, and lost productivity from cold weather.
- New lines have been added for marine piling.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

31 05 Common Work Results for Earthwork

31 05 13 – Soils for Earthwork

31 05 13.10 Borrow		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	To
							Labor	Equipment		Unit
0010	BORROW									
0020	Spread, 200 H.P. dozer, no compaction, 2 mi. RT haul									
0200	Common borrow	B-15	600	.047	C.Y.	14.50	1.80	4.02	20.32	
0700	Screened loam		600	.047		33.50	1.80	4.02	39.32	
0800	Topsoil, weed free	▼	600	.047		23	1.80	4.02	28.82	
0900	For 5 mile haul, odd	B-34B	200	.040	▼		1.41	2.92	4.33	

31 05 16 – Aggregates for Earthwork

31 05 16.10 Borrow										
0010	BORROW									
0020	Spread, with 200 H.P. dozer, no compaction, 2 mi. RT haul									
0100	Bank run gravel	B-15	600	.047	C.Y.	23	1.80	4.02	28.82	
0300	Crushed stone (1.40 tons per CY), 1-1/2"		600	.047		31.50	1.80	4.02	37.32	
0320	3/4"		600	.047		31.50	1.80	4.02	37.32	
0340	1/2"		600	.047		44	1.80	4.02	49.82	
0360	3/8"		600	.047		32.50	1.80	4.02	38.32	
0400	Sand, washed, concrete		600	.047		36.50	1.80	4.02	42.32	
0500	Dead or bank sand		600	.047		17	1.80	4.02	22.82	
0600	Select structural fill	▼	600	.047		21.50	1.80	4.02	27.32	
0900	For 5 mile haul, odd	B-34B	200	.040	▼		1.41	2.92	4.33	

31 05 23 – Cement and Concrete for Earthwork

31 05 23.30 Plant Mixed Bituminous Concrete

0010	PLANT MIXED BITUMINOUS CONCRETE									
0020	Aspholitic concrete plant mix (145 lb. per C.F.)				Ton	62			62	
0040	Aspholitic concrete less than 300 tons odd trucking costs									
0050	See Section 31 23 23.20 for hauling costs									
0200	All weather patching mix, hot				Ton	68			68	
0250	Cold patch					68			68	
0300	Berm mix				▼	68			68	

31 06 Schedules for Earthwork

31 06 60 – Schedules for Special Foundations and Load Bearing Elements

31 06 60.14 Piling Special Costs

0010	PILING SPECIAL COSTS									
0011	Piling special costs, pile caps, see Section 03 30 53.40									
0500	Cutoffs, concrete piles, plain	1 Pile	5.50	1.455	Co.		62.50		62.50	
0600	With steel thin shell, odd		38	.211			9		9	
0700	Steel pile or "H" piles		19	.421			18		18	
0800	Wood piles	▼	38	.211	▼		9		9	
0900	Pre-augering up to 30' deep, overage soil, 24" diameter	B-43	180	.267	L.F.		10.30	13.55	23.85	
0920	36" diameter		115	.417			16.10	21	37.10	
0960	48" diameter		70	.686			26.50	35	61.50	
0980	60" diameter	▼	50	.960	▼		37	49	86	
1000	Testing, any type piles, test load is twice the design load									
1050	50 ton design load, 100 ton test				Co.				14,000	15
1100	100 ton design load, 200 ton test								20,000	27
1150	150 ton design load, 300 ton test								26,000	28
1200	200 ton design load, 400 ton test								28,000	31
1250	400 ton design load, 800 ton test				▼				32,000	35
1500	Wet conditions, soft damp ground									
1600	Requiring mats for crane, odd								40%	

06 Schedules for Earthwork

06 60 – Schedules for Special Foundations and Load Bearing Elements

60.14 Piling Special Costs	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
Barge mounted driving rig, add								30%	30%
60.15 Mobilization									
MOBILIZATION									
Set up & remove, air compressor, 600 CFM	A-5	3.30	5.455	Ea.		191	16	207	310
1200 CFM	"	2.20	8.182			287	24	311	465
Crane, with pile leads and pile hammer, 75 ton	B-19	.60	106			4,700	3,050	7,750	10,700
150 ton	"	.36	177			7,850	5,100	12,950	17,900
Drill rig, for caissons, to 36", minimum	B-43	2	24			925	1,225	2,150	2,775
Up to 84"	"	1	48			1,850	2,450	4,300	5,500
Auxiliary boiler, for steam small	A-5	1.66	10.843			380	32	412	620
Large	"	.83	21.687			760	63.50	823.50	1,250
Rule of thumb: complete pile driving set up, small	B-19	.45	142			6,275	4,075	10,350	14,300
Large	"	.27	237			10,500	6,775	17,275	23,900
Mobilization, barge, by tug boat	B-83	25	.640	Mile		26	30	56	73

11 Clearing and Grubbing

11 10 – Clearing and Grubbing Land

11 10.10 Clear and Grub Site

CLEAR AND GRUB SITE									
Cut & chip light trees to 6" diam.	B-7	1	48	Acre		1,800	1,475	3,275	4,375
Grub stumps and remove	B-30	2	12			470	1,075	1,545	1,875
Cut & chip medium, trees to 12" diam.	B-7	.70	68.571			2,550	2,100	4,650	6,250
Grub stumps and remove	B-30	1	24			935	2,125	3,060	3,775
Cut & chip heavy, trees to 24" diam.	B-7	.30	160			5,975	4,925	10,900	14,600
Grub stumps and remove	B-30	.50	48			1,875	4,250	6,125	7,525
If burning is allowed, reduce cut & chip									40%
Chipping stumps, to 18" deep, 12" diam.	B-86	20	.400	Ea.		18.60	8.55	27.15	37.50
18" diameter		16	.500			23.50	10.65	34.15	47
24" diameter		14	.571			26.50	12.20	38.70	53.50
30" diameter		12	.667			31	14.25	45.25	62.50
36" diameter		10	.800			37	17.05	54.05	75
48" diameter	▼	8	1	▼		46.50	21.50	68	94
Tree thinning, feller buncher, conifer									
Up to 8" diameter	B-93	240	.033	Ea.		1.55	2.40	3.95	4.99
12" diameter		160	.050			2.33	3.61	5.94	7.50
Hardwood, up to 4" diameter		240	.033			1.55	2.40	3.95	4.99
8" diameter		180	.044			2.07	3.21	5.28	6.65
12" diameter	▼	120	.067	▼		3.10	4.81	7.91	10
Tree removal, congested area, aerial lift truck									
8" diameter	B-85	7	5.714	Ea.		214	133	347	470
12" diameter		6	6.667			250	155	405	550
18" diameter		5	8			299	186	485	660
24" diameter		4	10			375	232	607	825
36" diameter		3	13.333			500	310	810	1,100
48" diameter	▼	2	20	▼		750	465	1,215	1,650

31 13 Selective Tree and Shrub Removal and Trimming

31 13 13 – Selective Tree and Shrub Removal

31 13 13.10 Selective Clearing		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total
							Labor	Equipment		Unit
0010	SELECTIVE CLEARING									
0020	Clearing brush with brush saw	A-1C	.25	32	Acre		1,125	110	1,235	1.85
0100	By hand	1 Clob	.12	66.667			2,350		2,350	3.64
0300	With dozer, ball and chain, light clearing	B-11A	2	8			325	620	945	1.31
0400	Medium clearing		1.50	10.667			435	830	1,265	1.51
0500	With dozer and brush rake, light		10	1.600			65.50	124	189.50	2.21
0550	Medium brush to 4" diameter		8	2			81.50	155	236.50	2.71
0600	Heavy brush to 4" diameter		6.40	2.500			102	194	296	3.51
1000	Brush mowing, tractor w/rotary mower, no removal									
1020	Light density	B-84	2	4	Acre		186	172	358	4.41
1040	Medium density		1.50	5.333			248	229	477	5.61
1080	Heavy density		1	8			370	345	715	8.41

31 13 13.20 Selective Tree Removal

0010	SELECTIVE TREE REMOVAL									
0011	With tractor, large tract, firm									
0020	level terrain, no boulders, less than 12" diam. trees									
0300	300 HP dozer, up to 400 trees/acre, 0 to 25% hardwoods	B-10M	.75	16	Acre		685	2,300	2,985	3.51
0340	25% to 50% hardwoods		.60	20			855	2,875	3,730	4.41
0370	75% to 100% hardwoods		.45	26.667			1,150	3,825	4,975	5.91
0400	500 trees/acre, 0% to 25% hardwoods		.60	20			855	2,875	3,730	4.41
0440	25% to 50% hardwoods		.48	25			1,075	3,575	4,650	5.51
0470	75% to 100% hardwoods		.36	33.333			1,425	4,775	6,200	7.41
0500	More than 600 trees/acre, 0 to 25% hardwoods		.52	23.077			985	3,300	4,285	5.11
0540	25% to 50% hardwoods		.42	28.571			1,225	4,100	5,325	6.31
0570	75% to 100% hardwoods		.31	38.710			1,650	5,550	7,200	8.41
0900	Large tract clearing per tree									
1500	300 HP dozer, to 12" diameter, softwood	B-10M	320	.038	Eq.		1.60	5.35	6.95	
1550	Hardwood		100	.120			5.15	17.20	22.35	
1600	12" to 24" diameter, softwood		200	.060			2.56	8.60	11.16	
1650	Hardwood		80	.150			6.40	21.50	27.90	
1700	24" to 36" diameter, softwood		100	.120			5.15	17.20	22.35	
1750	Hardwood		50	.240			10.25	34.50	44.75	
1800	36" to 48" diameter, softwood		70	.171			7.35	24.50	31.85	
1850	Hardwood		35	.343			14.65	49	63.65	
2000	Stump removal on site by hydraulic backhoe, 1-1/2 C.Y.									
2040	4" to 6" diameter	B-17	60	.533	Eq.		20	11.55	31.55	
2050	8" to 12" diameter	B-30	33	.727			28.50	64.50	93	
2100	14" to 24" diameter		25	.960			37.50	85	122.50	
2150	26" to 36" diameter		16	1.500			58.50	133	191.50	
3000	Remove selective trees, on site using chain saws and chipper,									
3050	not incl. stumps, up to 6" diameter	B-7	18	2.667	Eq.		99.50	82	181.50	
3100	8" to 12" diameter		12	4			149	123	272	
3150	14" to 24" diameter		10	4.800			179	148	327	
3200	26" to 36" diameter		8	6			224	185	409	
3300	Machine load, 2 mile haul to dump, 12" diam. tree	A-3B	8	2			82	132	214	

14 Earth Stripping and Stockpiling

14 13 – Soil Stripping and Stockpiling

13.23 Topsoil Stripping and Stockpiling		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
TOPSOIL STRIPPING AND STOCKPILING							Labor	Equipment	Total	
	200 H.P. dozer, ideal conditions	B-10B	2300	.005	C.Y.		.22	.54	.76	.93
	Adverse conditions	"	1150	.010			.45	1.08	1.53	1.87
	300 H.P. dozer, ideal conditions	B-10M	3000	.004			.17	.57	.74	.89
	Adverse conditions	"	1650	.007			.31	1.04	1.35	1.61
	400 H.P. dozer, ideal conditions	B-10X	3900	.003			.13	.58	.71	.84
	Adverse conditions	"	2000	.006			.26	1.14	1.40	1.64
	Cloy, dry and soft, 200 H.P. dozer, ideal conditions	B-10B	1600	.008			.32	.78	1.10	1.34
	Adverse conditions	"	800	.015			.64	1.55	2.19	2.68
	Medium hard, 300 H.P. dozer, ideal conditions	B-10M	2000	.006			.26	.86	1.12	1.33
	Adverse conditions	"	1100	.011			.47	1.56	2.03	2.43
	Very hard, 400 H.P. dozer, ideal conditions	B-10X	2600	.005			.20	.87	1.07	1.26
	Adverse conditions	"	1340	.009	▼		.38	1.70	2.08	2.45
	Loom or topsoil, remove and stockpile on site									
	6" deep, 200' haul	B-10B	865	.014	C.Y.		.59	1.44	2.03	2.48
	300' haul		520	.023			.99	2.39	3.38	4.13
	500' haul		225	.053	▼		2.28	5.50	7.78	9.55
	Alternate method: 6" deep, 200' haul		5090	.002	S.Y.		.10	.24	.34	.42
	500' haul	▼	1325	.009	"		.39	.94	1.33	1.62

22 Grading

22 16 – Fine Grading

22 16.10 Finish Grading

FINISH GRADING										
	Finish grading area to be paved with grader, small area	B-11L	400	.040	S.Y.		1.63	1.53	3.16	4.17
	Large area		2000	.008			.33	.31	.64	.84
	Fine grade for slab on grade, machine	▼	1040	.015			.63	.59	1.22	1.61
	Hand grading	B-18	700	.034	▼		1.23	.06	1.29	1.95
	Finish grading logoon bottoms	B-11L	4	4	M.S.F.		163	153	316	415

23 Excavation and Fill

23 16 – Excavation

23 16.13 Excavating, Trench

EXCAVATING, TRENCH										
	Or continuous footing									
	Common earth with no sheeting or dewatering included									
	1' to 4' deep, 3/8 C.Y. excavator	B-11C	150	.107	B.C.Y.		4.36	2.23	6.59	9.10
	1/2 C.Y. excavator	B-11M	200	.080			3.27	1.82	5.09	6.95
	4' to 6' deep, 1/2 C.Y. excavator	"	200	.080			3.27	1.82	5.09	6.95
	5/8 C.Y. excavator	B-12Q	250	.064			2.65	2.21	4.86	6.45
	3/4 C.Y. excavator	B-12F	300	.053			2.21	2.16	4.37	5.75
	1/2 C.Y. excavator, truck mounted	B-12J	200	.080			3.32	4.22	7.54	9.70
	6' to 10' deep, 3/4 C.Y. excavator	B-12F	225	.071			2.95	2.88	5.83	7.65
	1 C.Y. excavator	B-12A	400	.040			1.66	1.87	3.53	4.58
	1 C.Y. excavator, truck mounted	B-12K	400	.040			1.66	2.40	4.06	5.15
	1-1/2 C.Y. excavator	B-12B	600	.027			1.11	1.60	2.71	3.44
	10' to 14' deep, 3/4 C.Y. excavator	B-12F	200	.080			3.32	3.24	6.56	8.60
	1 C.Y. excavator	B-12A	360	.044			1.84	2.08	3.92	5.10
	1-1/2 C.Y. excavator	B-12B	540	.030	▼		1.23	1.78	3.01	3.83

31 23 Excavation and Fill

31 23 16 - Excavation

31 23 16.13 Excavating, Trench

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl.
							Labor	Equipment		
1300	14' to 20' deep, 1 C.Y. excavator	B-12A	320	.050	B.C.Y.		2.07	2.34	4.41	
1310	1-1/2 C.Y. excavator	B-12B	480	.033			1.38	2	3.38	
1320	2-1/2 C.Y. excavator	B-12S	765	.021			.87	2.16	3.03	
1340	20' to 24' deep, 1 C.Y. excavator	B-12A	288	.056			2.30	2.60	4.90	
1342	1-1/2 C.Y. excavator	B-12B	432	.037			1.54	2.22	3.76	
1344	2-1/2 C.Y. excavator	B-12S	685	.023			.97	2.41	3.38	
1352	4' to 6' deep, 1/2 C.Y. excavator w/trench box	B-13H	188	.085			3.53	5.10	8.63	
1354	5/8 C.Y. excavator	"	235	.068			2.82	4.07	6.89	
1356	3/4 C.Y. excavator	B-13G	282	.057			2.35	2.70	5.05	
1362	6' to 10' deep, 3/4 C.Y. excavator w/trench box	"	212	.075			3.13	3.59	6.72	
1370	1 C.Y. excavator	B-13D	376	.043			1.76	2.29	4.05	
1371	1-1/2 C.Y. excavator	B-13E	564	.028			1.18	1.90	3.08	
1374	10' to 14' deep, 3/4 C.Y. excavator w/trench box	B-13G	188	.085			3.53	4.05	7.58	
1375	1 C.Y. excavator	B-13D	338	.047			1.96	2.55	4.51	
1376	1-1/2 C.Y. excavator	B-13E	508	.032			1.31	2.11	3.42	
1381	14' to 20' deep, 1 C.Y. excavator w/trench box	B-13D	301	.053			2.20	2.86	5.06	
1382	1-1/2 C.Y. excavator	B-13E	451	.035			1.47	2.38	3.85	
1383	2-1/2 C.Y. excavator	B-13I	720	.022			.92	2.45	3.37	
1386	20' to 24' deep, 1 C.Y. excavator w/trench box	B-13D	271	.059			2.45	3.18	5.63	
1387	1-1/2 C.Y. excavator	B-13E	406	.039			1.63	2.64	4.27	
1388	2-1/2 C.Y. excavator	B-13I	645	.025			1.03	2.74	3.77	
1391	Shoring by S.F./day trench wall protected loose mat., 4' W	B-6	3200	.008	Sf Wall	.39	.29	.10	.78	
1392	Rent shoring per week per S.F. wall protected, loose mat., 4' W					1.07			1.07	
1395	Hydraulic shoring, S.F. trench wall protected stable mat., 4' W	2 Clab	2700	.006		.17	.21		.38	
1397	semi-stable material, 4' W	"	2400	.007		.23	.23		.46	
1398	Rent hydraulic shoring per day/S.F. wall, stable mat., 4' W					.28			.28	
1399	semi-stable material					.34			.34	
1400	By hand with pick and shovel 2' to 6' deep, light soil	1 Clab	8	1	B.C.Y.		35		35	
1500	Heavy soil	"	4	2	"		70		70	
1700	For tamping backfilled trenches, air tamp, add	A-1G	100	.080	E.C.Y.		2.81	.50	3.31	
1900	Vibrating plate, add	B-18	180	.133	"		4.77	.23	5	
2100	Trim sides and bottom for concrete pours, common earth		1500	.016	S.F.		.57	.03	.60	
2300	Hardpan		600	.040	"		1.43	.07	1.50	
2400	Pier and spread footing excavation, add to above				B.C.Y.				30%	
3000	Backfill trench, F.E. loader, wheel mtd., 1 C.Y. bucket									
3020	Minimal haul	B-10R	400	.030	L.C.Y.		1.28	.67	1.95	
3040	100' haul	"	200	.060			2.56	1.34	3.90	
3080	2-1/4 C.Y. bucket, minimum haul	B-10T	600	.020			.85	.79	1.64	
3090	100' haul	"	300	.040			1.71	1.57	3.28	
5020	Loom & Sandy clay with no sheeting or dewatering included									
5050	1' to 4' deep, 3/8 C.Y. tractor loader/backhoe	B-11C	162	.099	B.C.Y.		4.03	2.06	6.09	
5060	1/2 C.Y. excavator	B-11M	216	.074			3.02	1.68	4.70	
5080	4' to 6' deep, 1/2 C.Y. excavator	"	216	.074			3.02	1.68	4.70	
5090	5/8 C.Y. excavator	B-12Q	276	.058			2.40	2	4.40	
5100	3/4 C.Y. excavator	B-12F	324	.049			2.05	2	4.05	
5130	1/2 C.Y. excavator, truck mounted	B-12J	216	.074			3.07	3.91	6.98	
5140	6' to 10' deep, 3/4 C.Y. excavator	B-12F	243	.066			2.73	2.66	5.39	
5150	1 C.Y. excavator	B-12A	432	.037			1.54	1.73	3.27	
5160	1 C.Y. excavator, truck mounted	B-12K	432	.037			1.54	2.23	3.77	
5170	1-1/2 C.Y. excavator	B-12B	648	.025			1.02	1.48	2.50	
5190	10' to 14' deep, 3/4 C.Y. excavator	B-12F	216	.074			3.07	3	6.07	
5200	1 C.Y. excavator	B-12A	389	.041			1.70	1.92	3.62	
5210	1-1/2 C.Y. excavator	B-12B	583	.027			1.14	1.65	2.79	

23 Excavation and Fill

23 16 - Excavation

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
							Labor	Equipment	Total	
31	16.13 Excavating, Trench									
535	14' to 20' deep, 1 C.Y. excavator	B-12A	346	.046	B.C.Y.		1.92	2.16	4.08	5.30
536	1-1/2 C.Y. excavator	B-12B	518	.031			1.28	1.85	3.13	3.99
537	2-1/2 C.Y. excavator	B-12S	826	.019			.80	2	2.80	3.42
538	20' to 24' deep, 1 C.Y. excavator	B-12A	311	.051			2.13	2.41	4.54	5.90
539	1-1/2 C.Y. excavator	B-12B	467	.034			1.42	2.06	3.48	4.42
540	2-1/2 C.Y. excavator	B-12S	740	.022			.90	2.23	3.13	3.82
541	4' to 6' deep, 1/2 C.Y. excavator w/trench box	B-13H	205	.078			3.24	4.67	7.91	10.05
542	5/8 C.Y. excavator	"	257	.062			2.58	3.73	6.31	8.05
543	3/4 C.Y. excavator	B-13G	308	.052			2.15	2.47	4.62	6
544	6' to 10' deep, 3/4 C.Y. excavator w/trench box	"	231	.069			2.87	3.29	6.16	8
545	1 C.Y. excavator	B-13D	410	.039			1.62	2.10	3.72	4.77
546	1-1/2 C.Y. excavator	B-13E	616	.026			1.08	1.74	2.82	3.56
547	10' to 14' deep, 3/4 C.Y. excavator w/trench box	B-13G	205	.078			3.24	3.71	6.95	9
548	1 C.Y. excavator	B-13D	370	.043			1.79	2.33	4.12	5.30
549	1-1/2 C.Y. excavator	B-13E	554	.029			1.20	1.94	3.14	3.95
550	14' to 20' deep, 1 C.Y. excavator w/trench box	B-13D	329	.049			2.02	2.62	4.64	5.95
551	1-1/2 C.Y. excavator	B-13E	492	.033			1.35	2.18	3.53	4.45
552	2-1/2 C.Y. excavator	B-13J	780	.021			.85	2.26	3.11	3.78
553	20' to 24' deep, 1 C.Y. excavator w/trench box	B-13D	295	.054			2.25	2.92	5.17	6.65
554	1-1/2 C.Y. excavator	B-13E	444	.036			1.49	2.42	3.91	4.93
555	2-1/2 C.Y. excavator	B-13J	695	.023			.95	2.54	3.49	4.24
556	Sand & gravel with no sheeting or dewatering included									
557	1' to 4' deep, 3/8 C.Y. excavator	B-11C	165	.097	B.C.Y.		3.96	2.02	5.98	8.25
558	1/2 C.Y. excavator	B-11M	220	.073			2.97	1.65	4.62	6.35
559	4' to 6' deep, 1/2 C.Y. excavator	"	220	.073			2.97	1.65	4.62	6.35
560	5/8 C.Y. excavator	B-12Q	275	.058			2.41	2.01	4.42	5.90
561	3/4 C.Y. excavator	B-12F	330	.048			2.01	1.96	3.97	5.20
562	1/2 C.Y. excavator, truck mounted	B-12J	220	.073			3.01	3.84	6.85	8.80
563	6' to 10' deep, 3/4 C.Y. excavator	B-12F	248	.065			2.67	2.61	5.28	6.95
564	1 C.Y. excavator	B-12A	440	.036			1.51	1.70	3.21	4.16
565	1 C.Y. excavator, truck mounted	B-12K	440	.036			1.51	2.18	3.69	4.69
566	1-1/2 C.Y. excavator	B-12B	660	.024			1	1.46	2.46	3.13
567	10' to 14' deep, 3/4 C.Y. excavator	B-12F	220	.073			3.01	2.94	5.95	7.85
568	1 C.Y. excavator	B-12A	396	.040			1.67	1.89	3.56	4.63
569	1-1/2 C.Y. excavator	B-12B	594	.027			1.12	1.62	2.74	3.48
570	14' to 20' deep, 1 C.Y. excavator	B-12A	352	.045			1.88	2.13	4.01	5.20
571	1-1/2 C.Y. excavator	B-12B	528	.030			1.26	1.82	3.08	3.91
572	2-1/2 C.Y. excavator	B-12S	840	.019			.79	1.97	2.76	3.36
573	20' to 24' deep, 1 C.Y. excavator	B-12A	317	.050			2.09	2.36	4.45	5.80
574	1-1/2 C.Y. excavator	B-12B	475	.034			1.40	2.02	3.42	4.34
575	2-1/2 C.Y. excavator	B-12S	755	.021			.88	2.19	3.07	3.75
576	4' to 6' deep, 1/2 C.Y. excavator w/trench box	B-13H	209	.077			3.17	4.58	7.75	9.90
577	5/8 C.Y. excavator	"	261	.061			2.54	3.67	6.21	7.90
578	3/4 C.Y. excavator	B-13G	314	.051			2.11	2.42	4.53	5.85
579	6' to 10' deep, 3/4 C.Y. excavator w/trench box	"	236	.068			2.81	3.22	6.03	7.85
580	1 C.Y. excavator	B-13D	418	.038			1.59	2.06	3.65	4.68
581	1-1/2 C.Y. excavator	B-13E	627	.026			1.06	1.71	2.77	3.49
582	10' to 14' deep, 3/4 C.Y. excavator w/trench box	B-13G	209	.077			3.17	3.64	6.81	8.85
583	1 C.Y. excavator	B-13D	376	.043			1.76	2.29	4.05	5.20
584	1-1/2 C.Y. excavator	B-13E	564	.028			1.18	1.90	3.08	3.88
585	14' to 20' deep, 1 C.Y. excavator w/trench box	B-13D	334	.048			1.99	2.58	4.57	5.85
586	1-1/2 C.Y. excavator	B-13E	502	.032			1.32	2.14	3.46	4.36
587	2-1/2 C.Y. excavator	B-13J	790	.020			.84	2.23	3.07	3.74

31 23 Excavation and Fill

31 23 16 - Excavation

31 23 16.13 Excavating, Trench		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	To Inc
							Labor	Equipment		
6392	20' to 24' deep, 1 C.Y. excavator w/trench box	B-13D	301	.053	B.C.Y.		2.20	2.86	5.06	
6394	1-1/2 C.Y. excavator	B-13E	452	.035			1.47	2.38	3.85	
6396	2-1/2 C.Y. excavator	B-13J	710	.023			.93	2.49	3.42	
7020	Dense hard clay with no sheeting or dewatering included									
7050	1' to 4' deep, 3/8 C.Y. excavator	B-11C	132	.121	B.C.Y.		4.95	2.53	7.48	
7060	1/2 C.Y. excavator	B-11M	176	.091			3.71	2.07	5.78	
7080	4' to 6' deep, 1/2 C.Y. excavator	"	176	.091			3.71	2.07	5.78	
7090	5/8 C.Y. excavator	B-12Q	220	.073			3.01	2.51	5.52	
7100	3/4 C.Y. excavator	B-12F	264	.061			2.51	2.45	4.96	
7130	1/2 C.Y. excavator, truck mounted	B-12J	176	.091			3.77	4.80	8.57	
7140	6' to 10' deep, 3/4 C.Y. excavator	B-12F	198	.081			3.35	3.27	6.62	
7150	1 C.Y. excavator	B-12A	352	.045			1.88	2.13	4.01	
7160	1 C.Y. excavator, truck mounted	B-12K	352	.045			1.88	2.73	4.61	
7170	1-1/2 C.Y. excavator	B-12B	528	.030			1.26	1.82	3.08	
7190	10' to 14' deep, 3/4 C.Y. excavator	B-12F	176	.091			3.77	3.68	7.45	
7200	1 C.Y. excavator	B-12A	317	.050			2.09	2.36	4.45	
7210	1-1/2 C.Y. excavator	B-12B	475	.034			1.40	2.02	3.42	
7250	14' to 20' deep, 1 C.Y. excavator	B-12A	282	.057			2.35	2.65	5	
7260	1-1/2 C.Y. excavator	B-12B	422	.038			1.57	2.28	3.85	
7270	2-1/2 C.Y. excavator	B-12S	675	.024			.98	2.45	3.43	
7300	20' to 24' deep, 1 C.Y. excavator	B-12A	254	.063			2.61	2.95	5.56	
7310	1-1/2 C.Y. excavator	B-12B	380	.042			1.75	2.53	4.28	
7320	2-1/2 C.Y. excavator	B-12S	605	.026			1.10	2.73	3.83	

31 23 16.14 Excavating, Utility Trench

EXCAVATING, UTILITY TRENCH										
0010	Common earth									
0011	Trenching with chain trencher, 12 H.P., operator walking									
0050	4" wide trench, 12" deep	B-53	800	.010	L.F.		.45	.08	.53	
0100	18" deep		750	.011			.48	.08	.56	
0150	24" deep		700	.011			.51	.09	.60	
0300	6" wide trench, 12" deep		650	.012			.55	.10	.65	
0350	18" deep		600	.013			.60	.10	.70	
0400	24" deep		550	.015			.65	.11	.76	
0450	36" deep		450	.018			.80	.14	.94	
0600	8" wide trench, 12" deep		475	.017			.75	.13	.88	
0650	18" deep		400	.020			.90	.16	1.06	
0700	24" deep		350	.023			1.02	.18	1.20	
0750	36" deep		300	.027			1.19	.21	1.40	
1000	Backfill by hand including compaction, odd									
1050	4" wide trench, 12" deep	A-1G	800	.010	L.F.		.35	.06	.41	
1100	18" deep		530	.015			.53	.09	.62	
1150	24" deep		400	.020			.70	.12	.82	
1300	6" wide trench, 12" deep		540	.015			.52	.09	.61	
1350	18" deep		405	.020			.69	.12	.81	
1400	24" deep		270	.030			1.04	.18	1.22	
1450	36" deep		180	.044			1.56	.28	1.84	
1600	8" wide trench, 12" deep		400	.020			.70	.12	.82	
1650	18" deep		265	.030			1.06	.19	1.25	
1700	24" deep		200	.040			1.40	.25	1.65	
1750	36" deep		135	.059			2.08	.37	2.45	
2000	Chain trencher, 40 H.P. operator riding									
2050	6" wide trench and backfill, 12" deep	B-54	1200	.007	L.F.		.30	.26	.56	

23 Excavation and Fill

23 16 – Excavation

31 3	16.14 Excavating, Utility Trench	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
							Labor	Equipment		
	18" deep	B-54	1000	.008	L.F.		.36	.31	.67	.88
	24" deep		975	.008			.37	.32	.69	.90
	36" deep		900	.009			.40	.35	.75	.98
	48" deep		750	.011			.48	.42	.90	1.18
	60" deep		650	.012			.55	.48	1.03	1.36
	8" wide trench and backfill, 12" deep		1000	.008			.36	.31	.67	.88
	18" deep		950	.008			.38	.33	.71	.93
	24" deep		900	.009			.40	.35	.75	.98
	36" deep		800	.010			.45	.39	.84	1.11
	48" deep		650	.012			.55	.48	1.03	1.36
	12" wide trench and backfill, 12" deep		975	.008			.37	.32	.69	.90
	18" deep		860	.009			.42	.36	.78	1.03
	24" deep		800	.010			.45	.39	.84	1.11
	36" deep		725	.011			.49	.43	.92	1.22
	16" wide trench and backfill, 12" deep		835	.010			.43	.37	.80	1.06
	18" deep		750	.011			.48	.42	.90	1.18
	24" deep	▼	700	.011	▼		.51	.45	.96	1.26
	Compaction with vibratory plate, odd								35%	35%
	Hand excavate and trim for pipe bells after trench excavation									
	8" pipe	1 Clob	155	.052	L.F.		1.81		1.81	2.79
	18" pipe	"	130	.062	"		2.16		2.16	3.32

31 3 16.16 Structural Excavation for Minor Structures

STRUCTURAL EXCAVATION FOR MINOR STRUCTURES		R312316-40								
	Hand, pits to 6' deep, sandy soil	1 Clob	8	1	B.C.Y.		35		35	54
	Heavy soil or clay		4	2			70		70	108
	Pits 6' to 12' deep, sandy soil		5	1.600			56		56	86.50
	Heavy soil or clay		3	2.667			93.50		93.50	144
	Pits 12' to 18' deep, sandy soil		4	2			70		70	108
	Heavy soil or clay		2	4			140		140	216
	Hand loading trucks from stock pile, sandy soil		12	.667			23.50		23.50	36
	Heavy soil or clay	▼	8	1	▼		35		35	54
	For wet or muck hand excavation, add to above								50%	50%
	Machine excavation, for spread and mat footings, elevator pits, and small building foundations									
	Common earth, hydraulic backhoe, 1/2 C.Y. bucket	B-12E	55	.291	B.C.Y.		12.05	6.75	18.80	26
	3/4 C.Y. bucket	B-12F	90	.178			7.35	7.20	14.55	19.10
	1 C.Y. bucket	B-12A	108	.148			6.15	6.95	13.10	17
	1-1/2 C.Y. bucket	B-12B	144	.111			4.61	6.65	11.26	14.35
	2 C.Y. bucket	B-12C	200	.080			3.32	6.25	9.57	11.95
	Sand and gravel, 3/4 C.Y. bucket	B-12F	100	.160			6.65	6.45	13.10	17.20
	1 C.Y. bucket	B-12A	120	.133			5.55	6.25	11.80	15.25
	1-1/2 C.Y. bucket	B-12B	160	.100			4.15	6	10.15	12.90
	2 C.Y. bucket	B-12C	220	.073			3.01	5.70	8.71	10.85
	Clay, till, or blasted rock, 3/4 C.Y. bucket	B-12F	80	.200			8.30	8.10	16.40	21.50
	1 C.Y. bucket	B-12A	95	.168			7	7.90	14.90	19.25
	1-1/2 C.Y. bucket	B-12B	130	.123			5.10	7.40	12.50	15.90
	2 C.Y. bucket	B-12C	175	.091			3.79	7.15	10.94	13.65
	Sandy clay & loam, hydraulic backhoe, 1/2 C.Y. bucket	B-12E	60	.267			11.05	6.20	17.25	23.50
	3/4 C.Y. bucket	B-12F	98	.163			6.75	6.60	13.35	17.55
	1 C.Y. bucket	B-12A	116	.138			5.70	6.45	12.15	15.80
	1-1/2 C.Y. bucket	B-12B	156	.103	▼		4.25	6.15	10.40	13.20
	For mobilization or demobilization, see Section 01 54 36.50									

31 23 Excavation and Fill

31 23 16 - Excavation

31 23 16.16 Structural Excavation for Minor Structures		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Tax
								Labor	Equipment	bed
9020	For dewatering, see Section 31 23 19.20									
9022	For larger structures, see Bulk Excavation, Section 31 23 16.42									
9024	For loading onto trucks, odd									15%
9026	For hauling, see Section 31 23 23.20									
9030	For sheeting or soldier bms/lagging, see Section 31 52 16.10									
9040	For trench excavation of strip figs, see Section 31 23 16.13									

31 23 16.26 Rock Removal

0010	ROCK REMOVAL	R312316-40								
0015	Drilling only rock, 2" hole for rock bolts	B-47	316	.076	L.F.			2.96	4.54	7.50
0800	2-1/2" hole for pre-splitting		600	.040				1.56	2.39	3.95
4600	Quarry operations, 2-1/2" to 3-1/2" diameter		715	.034				1.31	2.01	3.32

31 23 16.30 Drilling and Blasting Rock

0010	DRILLING AND BLASTING ROCK									
0020	Rock, open face, under 1500 C.Y.	B-47	225	.107	B.C.Y.	3.05		4.16	6.40	13.61
0100	Over 1500 C.Y.		300	.080		3.05		3.12	4.78	10.95
0200	Areas where blasting mats are required, under 1500 C.Y.		175	.137		3.05		5.35	8.20	16.60
0250	Over 1500 C.Y.		250	.096		3.05		3.74	5.75	12.54
0300	Bulk drilling and blasting, can vary greatly, average									9.50
0500	Pits, average									25
1300	Deep hole method, up to 1500 C.Y.	B-47	50	.480		3.05		18.70	28.50	50.25
1400	Over 1500 C.Y.		66	.364		3.05		14.15	21.50	38.70
1900	Restricted areas, up to 1500 C.Y.		13	1.846		3.05		72	110	185.05
2000	Over 1500 C.Y.		20	1.200		3.05		47	71.50	121.55
2200	Trenches, up to 1500 C.Y.		22	1.091		8.85		42.50	65	116.35
2300	Over 1500 C.Y.		26	.923		8.85		36	55	99.85
2500	Pier holes, up to 1500 C.Y.		22	1.091		3.05		42.50	65	110.55
2600	Over 1500 C.Y.		31	.774		3.05		30	46.50	79.55
2800	Boulders under 1/2 C.Y., loaded on truck, no hauling	B-100	80	.150				6.40	11.20	17.60
2900	Boulders, drilled, blasted	B-47	100	.240		3.05		9.35	14.35	26.75
3100	Jackhammer operators with foreman compressor, air tools	B-9	1	40	Day			1,425	209	1,634
3300	Track drill, compressor, operator and foreman	B-47	1	24	"			935	1,425	2,360
3500	Blasting caps				Ea.	5.65				5.65
3700	Explosives					.40				.40
3900	Blasting mats, rent, for first day					135				135
4000	Per odd day					45				45
4200	Preblast survey for 6 room house, individual lat, minimum	A-6	2.40	6.667				294	33	327
4300	Maximum	"	1.35	11.852				520	58.50	578.50
4500	City block within zone of influence, minimum	A-8	25200	.001	S.F.			.06		.06
4600	Maximum	"	15100	.002	"			.10	.01	.11

31 23 16.42 Excavating, Bulk Bank Measure

0010	EXCAVATING, BULK BANK MEASURE	R312316-40								
0011	Common earth piled									
0020	For loading onto trucks, odd									15%
0050	For mobilization and demobilization, see Section 01 54 36.50	R312316-45								
0100	For hauling, see Section 31 23 23.20									
0200	Excavator, hydraulic, crawler mtd., 1 C.Y. cap. = 100 C.Y./hr.	B-12A	800	.020	B.C.Y.			.83	.94	1.77
0250	1-1/2 C.Y. cap. = 125 C.Y./hr.	B-12B	1000	.016				.66	.96	1.62
0260	2 C.Y. cap. = 165 C.Y./hr.	B-12C	1320	.012				.50	.95	1.45
0300	3 C.Y. cap. = 260 C.Y./hr.	B-12D	2080	.008				.32	1.06	1.38
0305	3-1/2 C.Y. cap. = 300 C.Y./hr.	"	2400	.007				.28	.92	1.20
0310	Wheel mounted, 1/2 C.Y. cap. = 40 C.Y./hr.	B-12E	320	.050				2.07	1.16	3.23
0360	3/4 C.Y. cap. = 60 C.Y./hr.	B-12F	480	.033				1.38	1.35	2.73

23 Excavation and Fill

23 16 – Excavation

31	16.42 Excavating, Bulk Bank Measure	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
250	Clomshell, 1/2 C.Y. cop. = 20 C.Y./hr.	B-12G	160	.100	B.C.Y.		4.15	4.28	8.43	11
155	1 C.Y. cop. = 35 C.Y./hr.	B-12H	280	.057			2.37	4.13	6.50	8.15
105	Drogline, 1/2 C.Y. cap. = 30 C.Y./hr.	B-12I	240	.067			2.76	3.55	6.31	8.10
30	3/4 C.Y. cap. = 35 C.Y./hr.	"	280	.057			2.37	3.04	5.41	6.95
105	1-1/2 C.Y. cop. = 65 C.Y./hr.	B-12P	520	.031			1.28	2.21	3.49	4.37
1	Front end loader, truck mtd., 1-1/2 C.Y. cop. = 70 C.Y./hr.	B-10N	560	.021			.92	.87	1.79	2.35
25	2-1/2 C.Y. cop. = 95 C.Y./hr.	B-10O	760	.016			.67	1.18	1.85	2.32
105	3 C.Y. cop. = 130 C.Y./hr.	B-10P	1040	.012			.49	1.06	1.55	1.92
105	5 C.Y. cop. = 160 C.Y./hr.	B-10Q	1280	.009			.40	1.13	1.53	1.85
150	Wheel mounted, 3/4 C.Y. cop. = 45 C.Y./hr.	B-10R	360	.033			1.42	.74	2.16	2.98
155	1-1/2 C.Y. cop. = 80 C.Y./hr.	B-10S	640	.019			.80	.52	1.32	1.79
140	2-1/4 C.Y. cop. = 100 C.Y./hr.	B-10T	800	.015			.64	.59	1.23	1.62
15	5 C.Y. cop. = 185 C.Y./hr.	B-10U	1480	.008			.35	.65	1	1.24
140	Hydraulic excavator, truck mtd. 1/2 C.Y. = 30 C.Y./hr.	B-12J	240	.067			2.76	3.52	6.28	8.10
155	48 inch bucket, 1 C.Y. = 45 C.Y./hr.	B-12K	360	.044			1.84	2.67	4.51	5.75
170	Shovel, 1/2 C.Y. capacity = 55 C.Y./hr.	B-12L	440	.036			1.51	1.60	3.11	4.05
275	3/4 C.Y. capacity = 85 C.Y./hr.	B-12M	680	.024			.98	1.32	2.30	2.93
300	1 C.Y. capacity = 120 C.Y./hr.	B-12N	960	.017			.69	1.23	1.92	2.40
15	1-1/2 C.Y. capacity = 160 C.Y./hr.	B-12O	1280	.013			.52	.93	1.45	1.81
270	3 C.Y. cop. = 250 C.Y./hr.	B-12T	2000	.008			.33	.76	1.09	1.34
410	For soft soil or sand, deduct								15%	15%
410	For heavy soil or stiff clay, add								60%	60%
420	For wet excavation with clamshell or dropline, add								100%	100%
415	All other equipment, add								50%	50%
440	Clamshell in sheeting or cofferdam, minimum	B-12H	160	.100			4.15	7.25	11.40	14.25
540	Maximum	"	60	.267	▼		11.05	19.30	30.35	38
510	Excavating, bulk bank measure, sandy clay & loam piled									
510	For loading onto trucks, add								15%	15%
510	Excavator, hydraulic, crawler mtd., 1 C.Y. cop. = 120 C.Y./hr.	B-12A	960	.017	B.C.Y.		.69	.78	1.47	1.91
515	1-1/2 C.Y. cop. = 150 C.Y./hr.	B-12B	1200	.013			.55	.80	1.35	1.72
510	2 C.Y. cop. = 195 C.Y./hr.	B-12C	1560	.010			.43	.80	1.23	1.53
540	3 C.Y. cop. = 300 C.Y./hr.	B-12D	2400	.007			.28	.92	1.20	1.43
550	3.5 C.Y. cop. = 350 C.Y./hr.	"	2800	.006			.24	.79	1.03	1.23
560	Wheel mounted, 1/2 C.Y. cop. = 44 C.Y./hr.	B-12E	352	.045			1.88	1.05	2.93	4.03
560	3/4 C.Y. cop. = 66 C.Y./hr.	B-12F	528	.030	▼		1.26	1.23	2.49	3.26
600	For hauling excavated material, see Section 31 23 23.20									

31 16.46 Excavating, Bulk, Dozer

EXCAVATING, BULK, DOZER										
Open site										
200	80 H.P., 50' haul, sand & gravel	B-10L	460	.026	B.C.Y.		1.11	.96	2.07	2.75
200	Sandy clay & loam		440	.027			1.17	1.01	2.18	2.88
200	Common earth		400	.030			1.28	1.11	2.39	3.16
200	Clay		250	.048			2.05	1.77	3.82	5.05
220	150' haul, sand & gravel		230	.052			2.23	1.92	4.15	5.50
220	Sandy clay & loam		220	.055			2.33	2.01	4.34	5.75
220	Common earth		200	.060			2.56	2.21	4.77	6.30
220	Clay		125	.096			4.10	3.54	7.64	10.10
240	300' haul, sand & gravel		120	.100			4.27	3.69	7.96	10.55
240	Sandy clay & loam		115	.104			4.46	3.85	8.31	11
240	Common earth		100	.120			5.15	4.42	9.57	12.65
240	Clay	▼	65	.185			7.90	6.80	14.70	19.45
300	105 H.P., 50' haul, sand & gravel	B-10W	700	.017	▼		.73	.79	1.52	1.98

31 23 Excavation and Fill

31 23 16 - Excavation

31 23 16.46 Excavating, Bulk, Dozer

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Yo Ind
							Labor	Equipment		
3010	Sandy clay & loam	B-10W	680	.018	B.C.Y.		.75	.81	1.56	
3020	Common earth		610	.020			.84	.90	1.74	
3040	Clay		385	.031			1.33	1.43	2.76	
3200	150' haul, sand & gravel		310	.039			1.65	1.78	3.43	
3210	Sandy clay & loam		300	.040			1.71	1.84	3.55	
3220	Common earth		270	.044			1.90	2.04	3.94	
3240	Clay		170	.071			3.02	3.24	6.26	
3300	300' haul, sand & gravel		140	.086			3.66	3.93	7.59	
3310	Sandy clay & loam		135	.089			3.80	4.08	7.88	
3320	Common earth		120	.100			4.27	4.59	8.86	
3340	Clay		100	.120			5.15	5.50	10.65	
4000	200 H.P., 50' haul, sand & gravel	B-10B	1400	.009			.37	.89	1.26	
4010	Sandy clay & loam		1360	.009			.38	.91	1.29	
4020	Common earth		1230	.010			.42	1.01	1.43	
4040	Clay		770	.016			.67	1.61	2.28	
4200	150' haul, sand & gravel		595	.020			.86	2.09	2.95	
4210	Sandy clay & loam		580	.021			.88	2.14	3.02	
4220	Common earth		516	.023			.99	2.41	3.40	
4240	Clay		325	.037			1.58	3.82	5.40	
4400	300' haul, sand & gravel		310	.039			1.65	4.01	5.66	
4410	Sandy clay & loam		300	.040			1.71	4.14	5.85	
4420	Common earth		270	.044			1.90	4.60	6.50	
4440	Clay		170	.071			3.02	7.30	10.32	
5000	300 H.P., 50' haul, sand & gravel	B-10M	1900	.006			.27	.90	1.17	
5010	Sandy clay & loam		1850	.006			.28	.93	1.21	
5020	Common earth		1650	.007			.31	1.04	1.35	
5040	Clay		1025	.012			.50	1.68	2.18	
5200	150' haul, sand & gravel		920	.013			.56	1.87	2.43	
5210	Sandy clay & loam		895	.013			.57	1.92	2.49	
5220	Common earth		800	.015			.64	2.15	2.79	
5240	Clay		500	.024			1.03	3.44	4.47	
5400	300' haul, sand & gravel		470	.026			1.09	3.66	4.75	
5410	Sandy clay & loam		455	.026			1.13	3.78	4.91	
5420	Common earth		410	.029			1.25	4.19	5.44	
5440	Clay		250	.048			2.05	6.85	8.90	
5500	460 H.P., 50' haul, sand & gravel	B-10X	1930	.006			.27	1.18	1.45	
5506	Sandy clay & loam		1880	.006			.27	1.21	1.48	
5510	Common earth		1680	.007			.31	1.35	1.66	
5520	Clay		1050	.011			.49	2.16	2.65	
5530	150' haul, sand & gravel		1290	.009			.40	1.76	2.16	
5535	Sandy clay & loam		1250	.010			.41	1.82	2.23	
5540	Common earth		1120	.011			.46	2.03	2.49	
5550	Clay		700	.017			.73	3.25	3.98	
5560	300' haul, sand & gravel		660	.018			.78	3.44	4.22	
5565	Sandy clay & loam		640	.019			.80	3.55	4.35	
5570	Common earth		575	.021			.89	3.95	4.84	
5580	Clay		350	.034			1.47	6.50	7.97	
6000	700 H.P., 50' haul, sand & gravel	B-10V	3500	.003			.15	1.21	1.36	
6006	Sandy clay & loam		3400	.004			.15	1.25	1.40	
6010	Common earth		3035	.004			.17	1.39	1.56	
6020	Clay		1925	.006			.27	2.20	2.47	
6030	150' haul, sand & gravel		2025	.006			.25	2.09	2.34	
6035	Sandy clay & loam		1960	.006			.26	2.16	2.42	

23 Excavation and Fill

23 16 - Excavation

16.46 Excavating, Bulk, Dozer	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
						Labor	Equipment	Total	
Common earth	B-10V	1750	.007	B.C.Y.		.29	2.42	2.71	3.10
Clay		1100	.011			.47	3.85	4.32	4.95
300' haul, sand & gravel		1030	.012			.50	4.11	4.61	5.30
Sandy clay & loam		1005	.012			.51	4.21	4.72	5.40
Common earth		900	.013			.57	4.70	5.27	6
Clay		550	.022			.93	7.70	8.63	9.85
16.50 Excavation, Bulk, Scrapers									
EXCAVATION, BULK, SCRAPERS R312316-40									
Elev. scraper 11 C.Y., sand & gravel 1500' haul, 1/4 dozer	B-33F	690	.020	B.C.Y.		.88	2.22	3.10	3.78
3000' haul		610	.023			.99	2.52	3.51	4.28
5000' haul		505	.028			1.20	3.04	4.24	5.15
Common earth, 1500' haul		600	.023			1.01	2.56	3.57	4.34
3000' haul		530	.026			1.14	2.90	4.04	4.92
5000' haul		440	.032			1.38	3.49	4.87	5.95
Sandy clay & loam, 1500' haul		648	.022			.93	2.37	3.30	4.02
3000' haul		572	.024			1.06	2.68	3.74	4.56
5000' haul		475	.029			1.28	3.23	4.51	5.50
Clay, 1500' haul		375	.037			1.62	4.09	5.71	6.95
3000' haul		330	.042			1.84	4.65	6.49	7.90
5000' haul		275	.051			2.20	5.60	7.80	9.50
Self propelled scraper, 14 C.Y. 1/4 push dozer, sand									
Sand and gravel, 1500' haul	B-33D	920	.015	B.C.Y.		.66	2.14	2.80	3.35
3000' haul		805	.017			.75	2.44	3.19	3.83
5000' haul		645	.022			.94	3.05	3.99	4.77
Common earth, 1500' haul		800	.018			.76	2.46	3.22	3.85
3000' haul		700	.020			.87	2.81	3.68	4.40
5000' haul		560	.025			1.08	3.51	4.59	5.50
Sandy clay & loam, 1500' haul		864	.016			.70	2.28	2.98	3.56
3000' haul		786	.018			.77	2.50	3.27	3.92
5000' haul		605	.023			1	3.25	4.25	5.10
Clay, 1500' haul		500	.028			1.21	3.93	5.14	6.15
3000' haul		440	.032			1.38	4.47	5.85	7
5000' haul		350	.040			1.73	5.60	7.33	8.80
21 C.Y., 1/4 push dozer, sand & gravel, 1500' haul	B-33E	1180	.012			.51	2.04	2.55	3.02
3000' haul		910	.015			.67	2.64	3.31	3.91
5000' haul		750	.019			.81	3.21	4.02	4.75
Common earth, 1500' haul		1030	.014			.59	2.33	2.92	3.46
3000' haul		790	.018			.77	3.04	3.81	4.51
5000' haul		650	.022			.93	3.70	4.63	5.50
Sandy clay & loam, 1500' haul		1112	.013			.54	2.16	2.70	3.21
3000' haul		854	.016			.71	2.81	3.52	4.18
5000' haul		702	.020			.86	3.42	4.28	5.10
Clay, 1500' haul		645	.022			.94	3.73	4.67	5.50
3000' haul		495	.028			1.22	4.86	6.08	7.20
5000' haul		405	.035			1.50	5.95	7.45	8.80
Towed, 10 C.Y., 1/4 push dozer, sand & gravel, 1500' haul	B-33B	560	.025			1.08	4.08	5.16	6.15
3000' haul		450	.031			1.35	5.10	6.45	7.65
5000' haul		365	.038			1.66	6.25	7.91	9.40
Common earth, 1500' haul		420	.033			1.44	5.45	6.89	8.20
3000' haul		400	.035			1.51	5.70	7.21	8.60
5000' haul		310	.045			1.95	7.40	9.35	11.05
Sandy clay & loam, 1500' haul		454	.031			1.33	5.05	6.38	7.55

31 23 Excavation and Fill

31 23 16 – Excavation

31 23 16.50 Excavation, Bulk, Scrapers		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total	Per Unit
							Labor	Equipment			
2790	3000' haul	B-33B	432	.032	B.C.Y.		1.40	5.30		6.70	
2795	5000' haul		340	.041			1.78	6.75		8.53	
2800	Clay, 1500' haul		315	.044			1.92	7.25		9.17	
2820	3000' haul		300	.047			2.02	7.60		9.62	
2840	5000' haul		225	.062			2.69	10.15		12.84	
2900	15 C.Y., 1/4 push dozer, sand & gravel, 1500' haul	B-33C	800	.018			.76	2.88		3.64	
2920	3000' haul		640	.022			.95	3.60		4.55	
2940	5000' haul		520	.027			1.17	4.43		5.60	
2960	Common earth, 1500' haul		600	.023			1.01	3.84		4.85	
2980	3000' haul		560	.025			1.08	4.11		5.19	
3000	5000' haul		440	.032			1.38	5.25		6.63	
3005	Sandy clay & loam, 1500' haul		648	.022			.93	3.56		4.49	
3010	3000' haul		605	.023			1	3.81		4.81	
3015	5000' haul		475	.029			1.28	4.85		6.13	
3020	Clay, 1500' haul		450	.031			1.35	5.10		6.45	
3040	3000' haul		420	.033			1.44	5.50		6.94	
3060	5000' haul		320	.044			1.89	7.20		9.09	

31 23 19 – Dewatering

31 23 19.20 Dewatering Systems

0010	DEWATERING SYSTEMS										
0020	Excavate drainage trench, 2' wide, 2' deep	B-11C	90	.178	C.Y.		7.25	3.71		10.96	
0100	2' wide, 3' deep, with backhoe loader	"	135	.119			4.84	2.47		7.31	
0200	Excavate sump pits by hand, light soil	1 Clab	7.10	1.127			39.50			39.50	
0300	Heavy soil	"	3.50	2.286			80			80	
0500	Pumping 8 hr., attended 2 hrs. per day, including 20 L.F. of suction hose & 100 L.F. discharge hose										
0550	2" diaphragm pump used for 8 hours	B-10H	4	3	Day		128	18.50		146.50	
0650	4" diaphragm pump used for 8 hours	B-10I	4	3			128	31		159	
0800	8 hrs. attended, 2" diaphragm pump	B-10H	1	12			515	74		589	
0900	3" centrifugal pump	B-10J	1	12			515	83		598	
1000	4" diaphragm pump	B-10I	1	12			515	124		639	
1100	6" centrifugal pump	B-10K	1	12			515	345		860	
1300	CMP, incl. excavation 3' deep, 12" diameter	B-6	115	.209	L.F.	10.50	8	2.91		21.41	
1400	18" diameter		100	.240	"	15.75	9.20	3.34		28.29	
1600	Sump hole construction, incl. excavation and gravel, pit		1250	.019	C.F.	1	.74	.27		2.01	
1700	With 12" gravel collar, 12" pipe, corrugated, 16 ga.		70	.343	L.F.	24	13.15	4.77		41.92	
1800	15" pipe, corrugated, 16 ga.		55	.436		31	16.70	6.05		53.75	
1900	18" pipe, corrugated, 16 ga.		50	.480		36	18.40	6.70		61.10	
2000	24" pipe, corrugated, 14 ga.		40	.600		43.50	23	8.35		74.85	
2200	Wood lining, up to 4' x 4', add		300	.080	SFCA	16.65	3.07	1.11		20.83	
9950	See Section 31 23 19.40 for wellpoints										
9960	See Section 31 23 19.30 for deep well systems										

31 23 19.30 Wells

0010	WELLS										
0011	For dewatering 10' to 20' deep, 2' diameter										
0020	with steel casing, minimum	B-6	165	.145	V.L.F.	37	5.55	2.02		44.57	
0050	Average		98	.245		42	9.40	3.41		54.81	
0100	Maximum		49	.490		47.50	18.75	6.80		73.05	
0300	For dewatering pumps see 01 54 33 in Reference Section										
0500	For domestic water wells, see Section 33 21 13.10										

23 Excavation and Fill

23.19 - Dewatering

19.40 Wellpoints		Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bore Costs		Total	Total Incl O&P
							Labor	Equipment		
WELLPOINTS	R312319-90									
For equipment rental, see 01 54 33 in Reference Section										
Installation and removal of single stage system										
Labor only, .75 labor-hours per L.F.		1 Clab	10.70	.748	LF Hdr		26		26	40.50
2.0 labor-hours per L.F.		"	4	2	"		70		70	108
Pump operation, 4 @ 6 hr. shifts										
Per 24 hour day		4 Eqlt	1.27	25.197	Day		1,125		1,125	1,700
Per 168 hour week, 160 hr. straight, 8 hr. double time			.18	177	Week		7,950		7,950	12,000
Per 4.3 week month		▼	.04	800	Month		35,800		35,800	54,000
Complete installation, operation, equipment rental, fuel & removal of system with 2" wellpoints 5' O.C.										
100' long header, 6" diameter, first month		4 Eqlt	3.23	9.907	LF Hdr	155	445		600	840
Thereafter, per month			4.13	7.748		124	345		469	660
200' long header, 8" diameter, first month			6	5.333		140	239		379	515
Thereafter, per month			8.39	3.814		69.50	171		240.50	335
500' long header, 8" diameter, first month			10.63	3.010		54	135		189	263
Thereafter, per month			20.91	1.530		38.50	68.50		107	146
1,000' long header, 10" diameter, first month			11.62	2.754		46.50	123		169.50	237
Thereafter, per month		▼	41.81	.765	▼	23	34.50		57.50	77
Note: above figures include pumping 168 hrs. per week and include the pump operator and one stand-by pump.										

23.23 - Fill

23.23.13 Backfill

001	BACKFILL	R312323-30									
001	By hand, no compaction, light soil	1 Clab	14	.571	L.C.Y.			20	20	31	
011	Heavy soil		11	.727	"			25.50	25.50	39.50	
021	Compaction in 6" layers, hand tamp, add to above		20.60	.388	E.C.Y.			13.65	13.65	21	
040	Roller compaction operator walking, add	B-10A	100	.120				5.15	1.72	6.87	9.70
050	Air tamp, add	B-9D	190	.211				7.45	1.27	8.72	12.90
060	Vibrating plate, add	A-1D	60	.133				4.68	.54	5.22	7.80
080	Compaction in 12" layers, hand tamp, add to above	1 Clab	34	.235				8.25		8.25	12.70
090	Roller compaction operator walking, add	B-10A	150	.080				3.42	1.14	4.56	6.45
100	Air tamp, add	B-9	285	.140				4.98	.73	5.71	8.45
110	Vibrating plate, add	A-1E	90	.089				3.12	.45	3.57	5.30
130	Dozer backfilling, bulk, up to 300' haul, no compaction	B-10B	1200	.010	L.C.Y.			.43	1.04	1.47	1.79
140	Air tamped, add	B-11B	80	.200	E.C.Y.			8	3.35	11.35	15.85
160	Compacting backfill, 6" to 12" lifts, vibrating roller	B-10C	800	.015				.64	2.04	2.68	3.21
170	Sheepsfoot roller	B-10D	750	.016				.68	2.22	2.90	3.48
190	Dozer backfilling, trench, up to 300' haul, no compaction	B-10B	900	.013	L.C.Y.			.57	1.38	1.95	2.38
200	Air tamped, add	B-11B	80	.200	E.C.Y.			8	3.35	11.35	15.85
220	Compacting backfill, 6" to 12" lifts, vibrating roller	B-10C	700	.017				.73	2.33	3.06	3.67
230	Sheepsfoot roller	B-10D	650	.018				.79	2.56	3.35	4.01
235	Spreading in 8" layers, small dozer	B-10B	1060	.011	L.C.Y.			.48	1.17	1.65	2.02

23.23.14 Backfill, Structural

BACKFILL, STRUCTURAL									
Dozer or F.E. loader									
From existing stockpile, no compaction									
80 H.P., 50' haul, sand & gravel	B-10L	1100	.011	L.C.Y.		.47	.40	.87	1.15
Sandy clay & loam		1070	.011			.48	.41	.89	1.18
Common earth		975	.012			.53	.45	.98	1.30
Clay		850	.014			.60	.52	1.12	1.49

31 23 Excavation and Fill

31 23 23 - Fill

31 23 23.14 Backfill, Structural		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Tot Ind
							Labor	Equipment		
2400	300' haul, sand & gravel	B-10L	370	.032	L.C.Y.		1.39	1.20	2.59	
2410	Sandy clay & loam		360	.033			1.42	1.23	2.65	
2420	Common earth		330	.036			1.55	1.34	2.89	
2440	Clay		290	.041			1.77	1.53	3.30	
3000	105 H.P., 50' haul, sand & gravel	B-10W	1350	.009			.38	.41	.79	
3010	Sandy clay & loam		1325	.009			.39	.42	.81	
3020	Common earth		1225	.010			.42	.45	.87	
3040	Clay		1100	.011			.47	.50	.97	
3300	300' haul, sand & gravel		465	.026			1.10	1.18	2.28	
3310	Sandy clay & loam		455	.026			1.13	1.21	2.34	
3320	Common earth		415	.029			1.24	1.33	2.57	
3340	Clay		370	.032			1.39	1.49	2.88	
4000	200 H.P., 50' haul, sand & gravel	B-10B	2500	.005			.21	.50	.71	
4010	Sandy clay & loam		2435	.005			.21	.51	.72	
4020	Common earth		2200	.005			.23	.56	.79	
4040	Clay		1950	.006			.26	.64	.90	
4400	300' haul, sand & gravel		805	.015			.64	1.54	2.18	
4410	Sandy clay & loam		790	.015			.65	1.57	2.22	
4420	Common earth		735	.016			.70	1.69	2.39	
4440	Clay		660	.018			.78	1.88	2.66	
5000	300 H.P., 50' haul, sand & gravel	B-10M	3170	.004			.16	.54	.70	
5010	Sandy clay & loam		3110	.004			.16	.55	.71	
5020	Common earth		2900	.004			.18	.59	.77	
5040	Clay		2700	.004			.19	.64	.83	
5400	300' haul, sand & gravel		1500	.008			.34	1.15	1.49	
5410	Sandy clay & loam		1470	.008			.35	1.17	1.52	
5420	Common earth		1350	.009			.38	1.27	1.65	
5440	Clay		1225	.010			.42	1.40	1.82	
6010	For trench backfill, see Section 31 23 16.13 and 31 23 16.14									
6100	For compaction, see Section 31 23 23.24									

31 23 23.16 Fill By Borrow and Utility Bedding

0010	FILL BY BORROW AND UTILITY BEDDING									
0015	Fill by borrow, load, 1 mile haul, spread with dozer									
0020	for embankments	B-15	1200	.023	L.C.Y.	14.50	.90	2.01	17.41	
0035	Select fill for shoulders & embankments	"	1200	.023	"	21.50	.90	2.01	24.41	
0040	Fill, for hauling over 1 mile, add to above per C.Y., see Section 31 23 23.20				Mile				1.26	
0049	Utility bedding, for pipe & conduit, nat incl. compaction									
0050	Crushed or screened bank run gravel	B-6	150	.160	L.C.Y.	26	6.15	2.23	34.38	
0100	Crushed stone 3/4" to 1/2"		150	.160		31.50	6.15	2.23	39.88	
0200	Sand, dead or bank		150	.160		17	6.15	2.23	25.38	
0500	Compacting bedding in trench	A-10	90	.089	E.C.Y.		3.12	.36	3.48	
0600	If material source exceeds 2 miles, add for extra mileage.									
0610	See Section 31 23 23.20 for hauling mileage add.									

31 23 23.17 General Fill

0010	GENERAL FILL									
0011	Spread dumped material, no compaction									
0020	By dozer, no compaction	B-10B	1000	.012	L.C.Y.		.51	1.24	1.75	
0100	By hand	1 Clab	12	.667	"		23.50		23.50	
0500	Gravel fill, compacted, under floor slabs, 4" deep	B-37	10000	.005	S.F.	.43	.18	.01	.62	
0600	6" deep		8600	.006		.64	.21	.02	.87	
0700	9" deep		7200	.007		1.06	.25	.02	1.33	
0800	12" deep		6000	.008		1.49	.30	.02	1.81	

23 Excavation and Fill

23 - Fill

23.17 General Fill		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
							Labor	Equipment		
0000	Alternate pricing method, 4" deep	B-37	120	.400	E.C.Y.	32	14.80	1.24	48.04	59
0010	6" deep		160	.300		32	11.10	.93	44.03	53
0020	9" deep		200	.240		32	8.90	.75	41.65	49.50
0030	12" deep		220	.218		32	8.10	.68	40.78	48
0040	For fill under exterior paving, see Section 32 11 23.23									
0050	For flowable fill, see Section 03 31 05.35									
23.20 Hauling										
HAULING										
Excavated or borrow, loose cubic yards										
no loading equipment, including hauling, waiting, loading/dumping										
time per cycle (wait, load, travel, unload or dump & return)										
0010	8 C.Y. truck, 15 MPH ave, cycle 0.5 miles, 10 min. wait/Ld./Uld.	B-34A	320	.025	L.C.Y.		.88	1.12	2	2.57
0015	cycle 1 mile		272	.029			1.04	1.31	2.35	3.02
0020	cycle 2 miles		208	.038			1.36	1.72	3.08	3.95
0025	cycle 4 miles		144	.056			1.96	2.48	4.44	5.70
0030	cycle 6 miles		112	.071			2.52	3.19	5.71	7.35
0035	cycle 8 miles		88	.091			3.21	4.06	7.27	9.35
0040	20 MPH ave, cycle 0.5 mile		336	.024			.84	1.06	1.90	2.45
0045	cycle 1 mile		296	.027			.95	1.21	2.16	2.78
0050	cycle 2 miles		240	.033			1.18	1.49	2.67	3.42
0055	cycle 4 miles		176	.045			1.60	2.03	3.63	4.66
0060	cycle 6 miles		136	.059			2.08	2.63	4.71	6.05
0065	cycle 8 miles		112	.071			2.52	3.19	5.71	7.35
0070	25 MPH ave, cycle 4 miles		192	.042			1.47	1.86	3.33	4.28
0075	cycle 6 miles		160	.050			1.77	2.23	4	5.15
0080	cycle 8 miles		128	.063			2.21	2.79	5	6.40
0085	30 MPH ave, cycle 4 miles		216	.037			1.31	1.65	2.96	3.80
0090	cycle 6 miles		176	.045			1.60	2.03	3.63	4.66
0095	cycle 8 miles		144	.056			1.96	2.48	4.44	5.70
0100	15 MPH ave, cycle 0.5 mile, 15 min. wait/Ld./Uld.		224	.036			1.26	1.60	2.86	3.66
0105	cycle 1 mile		200	.040			1.41	1.79	3.20	4.11
0110	cycle 2 miles		168	.048			1.68	2.13	3.81	4.89
0115	cycle 4 miles		120	.067			2.35	2.98	5.33	6.85
0120	cycle 6 miles		96	.083			2.94	3.72	6.66	8.55
0125	cycle 8 miles		80	.100			3.53	4.47	8	10.25
0130	20 MPH ave, cycle 0.5 mile		232	.034			1.22	1.54	2.76	3.54
0135	cycle 1 mile		208	.038			1.36	1.72	3.08	3.95
0140	cycle 2 miles		184	.043			1.53	1.94	3.47	4.47
0145	cycle 4 miles		144	.056			1.96	2.48	4.44	5.70
0150	cycle 6 miles		112	.071			2.52	3.19	5.71	7.35
0155	cycle 8 miles		96	.083			2.94	3.72	6.66	8.55
0160	25 MPH ave, cycle 4 miles		152	.053			1.86	2.35	4.21	5.40
0165	cycle 6 miles		128	.063			2.21	2.79	5	6.40
0170	cycle 8 miles		112	.071			2.52	3.19	5.71	7.35
0175	30 MPH ave, cycle 4 miles		168	.048			1.68	2.13	3.81	4.89
0180	cycle 6 miles		144	.056			1.96	2.48	4.44	5.70
0185	cycle 8 miles		120	.067			2.35	2.98	5.33	6.85
0190	15 MPH ave, cycle 0.5 mile, 20 min wait/Ld./Uld.		176	.045			1.60	2.03	3.63	4.66
0195	cycle 1 mile		160	.050			1.77	2.23	4	5.15
0200	cycle 2 miles		136	.059			2.08	2.63	4.71	6.05
0205	cycle 4 miles		104	.077			2.72	3.44	6.16	7.90
0210	cycle 6 miles		88	.091			3.21	4.06	7.27	9.35

31 23 Excavation and Fill

31 23 23 - Fill

31 23 23.20 Hauling		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
0224	cycle 8 miles	B-34A	72	.111	L.C.Y.		3.92	4.96	8.88
0226	20 MPH ave, cycle 0.5 mile		176	.045			1.60	2.03	3.63
0228	cycle 1 mile		168	.048			1.68	2.13	3.81
0230	cycle 2 miles		144	.056			1.96	2.48	4.44
0232	cycle 4 miles		120	.067			2.35	2.98	5.33
0234	cycle 6 miles		96	.083			2.94	3.72	6.66
0236	cycle 8 miles		88	.091			3.21	4.06	7.27
0244	25 MPH ave, cycle 4 miles		128	.063			2.21	2.79	5
0246	cycle 6 miles		112	.071			2.52	3.19	5.71
0248	cycle 8 miles		96	.083			2.94	3.72	6.66
0250	30 MPH ave, cycle 4 miles		136	.059			2.08	2.63	4.71
0252	cycle 6 miles		120	.067			2.35	2.98	5.33
0254	cycle 8 miles		104	.077			2.72	3.44	6.16
0314	15 MPH ave, cycle 0.5 mile, 25 min wait/Ld./Uld.		144	.056			1.96	2.48	4.44
0316	cycle 1 mile		128	.063			2.21	2.79	5
0318	cycle 2 miles		112	.071			2.52	3.19	5.71
0320	cycle 4 miles		96	.083			2.94	3.72	6.66
0322	cycle 6 miles		80	.100			3.53	4.47	8
0324	cycle 8 miles		64	.125			4.41	5.60	10.01
0326	20 MPH ave, cycle 0.5 mile		144	.056			1.96	2.48	4.44
0328	cycle 1 mile		136	.059			2.08	2.63	4.71
0330	cycle 2 miles		120	.067			2.35	2.98	5.33
0332	cycle 4 miles		104	.077			2.72	3.44	6.16
0334	cycle 6 miles		88	.091			3.21	4.06	7.27
0336	cycle 8 miles		80	.100			3.53	4.47	8
0344	25 MPH ave, cycle 4 miles		112	.071			2.52	3.19	5.71
0346	cycle 6 miles		96	.083			2.94	3.72	6.66
0348	cycle 8 miles		88	.091			3.21	4.06	7.27
0350	30 MPH ave, cycle 4 miles		112	.071			2.52	3.19	5.71
0352	cycle 6 miles		104	.077			2.72	3.44	6.16
0354	cycle 8 miles		96	.083			2.94	3.72	6.66
0414	15 MPH ave, cycle 0.5 mile, 30 min wait/Ld./Uld.		120	.067			2.35	2.98	5.33
0416	cycle 1 mile		112	.071			2.52	3.19	5.71
0418	cycle 2 miles		96	.083			2.94	3.72	6.66
0420	cycle 4 miles		80	.100			3.53	4.47	8
0422	cycle 6 miles		72	.111			3.92	4.96	8.88
0424	cycle 8 miles		64	.125			4.41	5.60	10.01
0426	20 MPH ave, cycle 0.5 mile		120	.067			2.35	2.98	5.33
0428	cycle 1 mile		112	.071			2.52	3.19	5.71
0430	cycle 2 miles		104	.077			2.72	3.44	6.16
0432	cycle 4 miles		88	.091			3.21	4.06	7.27
0434	cycle 6 miles		80	.100			3.53	4.47	8
0436	cycle 8 miles		72	.111			3.92	4.96	8.88
0444	25 MPH ave, cycle 4 miles		96	.083			2.94	3.72	6.66
0446	cycle 6 miles		88	.091			3.21	4.06	7.27
0448	cycle 8 miles		80	.100			3.53	4.47	8
0450	30 MPH ave, cycle 4 miles		96	.083			2.94	3.72	6.66
0452	cycle 6 miles		88	.091			3.21	4.06	7.27
0454	cycle 8 miles		80	.100			3.53	4.47	8
0514	15 MPH ave, cycle 0.5 mile, 35 min wait/Ld./Uld.		104	.077			2.72	3.44	6.16
0516	cycle 1 mile		96	.083			2.94	3.72	6.66
0518	cycle 2 miles		88	.091			3.21	4.06	7.27
0520	cycle 4 miles		72	.111			3.92	4.96	8.88

23 Excavation and Fill

3 23 - Fill

23.20 Hauling	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Ind O&P
						Labor	Equipment	Total	
cycle 6 miles	B-34A	64	.125	L.C.Y.		4.41	5.60	10.01	12.85
cycle 8 miles		56	.143			5.05	6.40	11.45	14.65
20 MPH ave, cycle 0.5 mile		104	.077			2.72	3.44	6.16	7.90
cycle 1 mile		96	.083			2.94	3.72	6.66	8.55
cycle 2 miles		96	.083			2.94	3.72	6.66	8.55
cycle 4 miles		80	.100			3.53	4.47	8	10.25
cycle 6 miles		72	.111			3.92	4.96	8.88	11.40
cycle 8 miles		64	.125			4.41	5.60	10.01	12.85
25 MPH ave, cycle 4 miles		88	.091			3.21	4.06	7.27	9.35
cycle 6 miles		80	.100			3.53	4.47	8	10.25
cycle 8 miles		72	.111			3.92	4.96	8.88	11.40
30 MPH ave, cycle 4 miles		88	.091			3.21	4.06	7.27	9.35
cycle 6 miles		80	.100			3.53	4.47	8	10.25
cycle 8 miles		72	.111			3.92	4.96	8.88	11.40
12 C.Y. truck, cycle 0.5 mile, 15 MPH ave, 15 min. wait/Ld./Uld.	B-34B	336	.024			.84	1.74	2.58	3.19
cycle 1 mile		300	.027			.94	1.95	2.89	3.57
cycle 2 miles		252	.032			1.12	2.32	3.44	4.25
cycle 4 miles		180	.044			1.57	3.25	4.82	5.95
cycle 6 miles		144	.056			1.96	4.06	6.02	7.45
cycle 8 miles		120	.067			2.35	4.87	7.22	8.90
cycle 10 miles		96	.083			2.94	6.10	9.04	11.15
20 MPH ave, cycle 0.5 mile		348	.023			.81	1.68	2.49	3.08
cycle 1 mile		312	.026			.91	1.87	2.78	3.43
cycle 2 miles		276	.029			1.02	2.12	3.14	3.88
cycle 4 miles		216	.037			1.31	2.71	4.02	4.96
cycle 6 miles		168	.048			1.68	3.48	5.16	6.40
cycle 8 miles		144	.056			1.96	4.06	6.02	7.45
cycle 10 miles		120	.067			2.35	4.87	7.22	8.90
25 MPH ave, cycle 4 miles		228	.035			1.24	2.56	3.80	4.70
cycle 6 miles		192	.042			1.47	3.05	4.52	5.60
cycle 8 miles		168	.048			1.68	3.48	5.16	6.40
cycle 10 miles		144	.056			1.96	4.06	6.02	7.45
30 MPH ave, cycle 4 miles		252	.032			1.12	2.32	3.44	4.25
cycle 6 miles		216	.037			1.31	2.71	4.02	4.96
cycle 8 miles		180	.044			1.57	3.25	4.82	5.95
cycle 10 miles		156	.051			1.81	3.75	5.56	6.85
35 MPH ave, cycle 4 miles		264	.030			1.07	2.21	3.28	4.06
cycle 6 miles		228	.035			1.24	2.56	3.80	4.70
cycle 8 miles		204	.039			1.38	2.87	4.25	5.25
cycle 10 miles		180	.044			1.57	3.25	4.82	5.95
cycle 20 miles		120	.067			2.35	4.87	7.22	8.90
cycle 30 miles		84	.095			3.36	6.95	10.31	12.75
cycle 40 miles		72	.111			3.92	8.10	12.02	14.90
40 MPH ave, cycle 6 miles		240	.033			1.18	2.44	3.62	4.46
cycle 8 miles		216	.037			1.31	2.71	4.02	4.96
cycle 10 miles		192	.042			1.47	3.05	4.52	5.60
cycle 20 miles		120	.067			2.35	4.87	7.22	8.90
cycle 30 miles		96	.083			2.94	6.10	9.04	11.15
cycle 40 miles		72	.111			3.92	8.10	12.02	14.90
cycle 50 miles		60	.133			4.71	9.75	14.46	17.85
45 MPH ave, cycle 8 miles		216	.037			1.31	2.71	4.02	4.96
cycle 10 miles		204	.039			1.38	2.87	4.25	5.25
cycle 20 miles		132	.061			2.14	4.43	6.57	8.10

31 23 Excavation and Fill

31 23 23 - Fill

31 23 23.20 Hauling		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
1100	cycle 30 miles	B-34B	108	.074	L.C.Y.		2.61	5.40	8.01
1102	cycle 40 miles		84	.095			3.36	6.95	10.31
1104	cycle 50 miles		72	.111			3.92	8.10	12.02
1106	50 MPH ave, cycle 10 miles		216	.037			1.31	2.71	4.02
1108	cycle 20 miles		144	.056			1.96	4.06	6.02
1110	cycle 30 miles		108	.074			2.61	5.40	8.01
1112	cycle 40 miles		84	.095			3.36	6.95	10.31
1114	cycle 50 miles		72	.111			3.92	8.10	12.02
1214	15 MPH ave, cycle 0.5 mile, 20 min. wait/Ld./Uld.		264	.030			1.07	2.21	3.28
1216	cycle 1 mile		240	.033			1.18	2.44	3.62
1218	cycle 2 miles		204	.039			1.38	2.87	4.25
1220	cycle 4 miles		156	.051			1.81	3.75	5.56
1222	cycle 6 miles		132	.061			2.14	4.43	6.57
1224	cycle 8 miles		108	.074			2.61	5.40	8.01
1225	cycle 10 miles		96	.083			2.94	6.10	9.04
1226	20 MPH ave, cycle 0.5 mile		264	.030			1.07	2.21	3.28
1228	cycle 1 mile		252	.032			1.12	2.32	3.44
1230	cycle 2 miles		216	.037			1.31	2.71	4.02
1232	cycle 4 miles		180	.044			1.57	3.25	4.82
1234	cycle 6 miles		144	.056			1.96	4.06	6.02
1236	cycle 8 miles		132	.061			2.14	4.43	6.57
1238	cycle 10 miles		108	.074			2.61	5.40	8.01
1240	25 MPH ave, cycle 4 miles		192	.042			1.47	3.05	4.52
1242	cycle 6 miles		168	.048			1.68	3.48	5.16
1244	cycle 8 miles		144	.056			1.96	4.06	6.02
1246	cycle 10 miles		132	.061			2.14	4.43	6.57
1250	30 MPH ave, cycle 4 miles		204	.039			1.38	2.87	4.25
1252	cycle 6 miles		180	.044			1.57	3.25	4.82
1254	cycle 8 miles		156	.051			1.81	3.75	5.56
1256	cycle 10 miles		144	.056			1.96	4.06	6.02
1260	35 MPH ave, cycle 4 miles		216	.037			1.31	2.71	4.02
1262	cycle 6 miles		192	.042			1.47	3.05	4.52
1264	cycle 8 miles		168	.048			1.68	3.48	5.16
1266	cycle 10 miles		156	.051			1.81	3.75	5.56
1268	cycle 20 miles		108	.074			2.61	5.40	8.01
1269	cycle 30 miles		72	.111			3.92	8.10	12.02
1270	cycle 40 miles		60	.133			4.71	9.75	14.46
1272	40 MPH ave, cycle 6 miles		192	.042			1.47	3.05	4.52
1274	cycle 8 miles		180	.044			1.57	3.25	4.82
1276	cycle 10 miles		156	.051			1.81	3.75	5.56
1278	cycle 20 miles		108	.074			2.61	5.40	8.01
1280	cycle 30 miles		84	.095			3.36	6.95	10.31
1282	cycle 40 miles		72	.111			3.92	8.10	12.02
1284	cycle 50 miles		60	.133			4.71	9.75	14.46
1294	45 MPH ave, cycle 8 miles		180	.044			1.57	3.25	4.82
1296	cycle 10 miles		168	.048			1.68	3.48	5.16
1298	cycle 20 miles		120	.067			2.35	4.87	7.22
1300	cycle 30 miles		96	.083			2.94	6.10	9.04
1302	cycle 40 miles		72	.111			3.92	8.10	12.02
1304	cycle 50 miles		60	.133			4.71	9.75	14.46
1306	50 MPH ave, cycle 10 miles		180	.044			1.57	3.25	4.82
1308	cycle 20 miles		132	.061			2.14	4.43	6.57
1310	cycle 30 miles		96	.083			2.94	6.10	9.04

23 Excavation and Fill

3 23 - Fill

1	23.20 Hauling	Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
							Labor	Equipment		
1		B-34B	84	.095	L.C.Y.		3.36	6.95	10.31	12.75
2	cycle 40 miles		72	.111			3.92	8.10	12.02	14.90
3	cycle 50 miles		204	.039			1.38	2.87	4.25	5.25
4	15 MPH ave, cycle 0.5 mile, 25 min. wait/Ld./Uld.		192	.042			1.47	3.05	4.52	5.60
5	cycle 1 mile		168	.048			1.68	3.48	5.16	6.40
6	cycle 2 miles		132	.061			2.14	4.43	6.57	8.10
7	cycle 4 miles		120	.067			2.35	4.87	7.22	8.90
8	cycle 6 miles		96	.083			2.94	6.10	9.04	11.15
9	cycle 8 miles		84	.095			3.36	6.95	10.31	12.75
10	cycle 10 miles		216	.037			1.31	2.71	4.02	4.96
11	20 MPH ave, cycle 0.5 mile		204	.039			1.38	2.87	4.25	5.25
12	cycle 1 mile		180	.044			1.57	3.25	4.82	5.95
13	cycle 2 miles		156	.051			1.81	3.75	5.56	6.85
14	cycle 4 miles		132	.061			2.14	4.43	6.57	8.10
15	cycle 6 miles		120	.067			2.35	4.87	7.22	8.90
16	cycle 8 miles		96	.083			2.94	6.10	9.04	11.15
17	cycle 10 miles		168	.048			1.68	3.48	5.16	6.40
18	25 MPH ave, cycle 4 miles		144	.056			1.96	4.06	6.02	7.45
19	cycle 6 miles		132	.061			2.14	4.43	6.57	8.10
20	cycle 8 miles		108	.074			2.61	5.40	8.01	9.90
21	cycle 10 miles		168	.048			1.68	3.48	5.16	6.40
22	30 MPH ave, cycle 4 miles		156	.051			1.81	3.75	5.56	6.85
23	cycle 6 miles		132	.061			2.14	4.43	6.57	8.10
24	cycle 8 miles		120	.067			2.35	4.87	7.22	8.90
25	cycle 10 miles		180	.044			1.57	3.25	4.82	5.95
26	35 MPH ave, cycle 4 miles		156	.051			1.81	3.75	5.56	6.85
27	cycle 6 miles		144	.056			1.96	4.06	6.02	7.45
28	cycle 8 miles		132	.061			2.14	4.43	6.57	8.10
29	cycle 10 miles		96	.083			2.94	6.10	9.04	11.15
30	cycle 20 miles		72	.111			3.92	8.10	12.02	14.90
31	cycle 30 miles		60	.133			4.71	9.75	14.46	17.85
32	cycle 40 miles		168	.048			1.68	3.48	5.16	6.40
33	40 MPH ave, cycle 6 miles		156	.051			1.81	3.75	5.56	6.85
34	cycle 8 miles		144	.056			1.96	4.06	6.02	7.45
35	cycle 10 miles		96	.083			2.94	6.10	9.04	11.15
36	cycle 20 miles		84	.095			3.36	6.95	10.31	12.75
37	cycle 30 miles		60	.133			4.71	9.75	14.46	17.85
38	cycle 40 miles		60	.133			4.71	9.75	14.46	17.85
39	cycle 50 miles		156	.051			1.81	3.75	5.56	6.85
40	45 MPH ave, cycle 8 miles		144	.056			1.96	4.06	6.02	7.45
41	cycle 10 miles		108	.074			2.61	5.40	8.01	9.90
42	cycle 20 miles		84	.095			3.36	6.95	10.31	12.75
43	cycle 30 miles		72	.111			3.92	8.10	12.02	14.90
44	cycle 40 miles		60	.133			4.71	9.75	14.46	17.85
45	cycle 50 miles		156	.051			1.81	3.75	5.56	6.85
46	50 MPH ave, cycle 10 miles		120	.067			2.35	4.87	7.22	8.90
47	cycle 20 miles		96	.083			2.94	6.10	9.04	11.15
48	cycle 30 miles		72	.111			3.92	8.10	12.02	14.90
49	cycle 40 miles		60	.133			4.71	9.75	14.46	17.85
50	cycle 50 miles		180	.044			1.57	3.25	4.82	5.95
51	15 MPH, cycle 0.5 mile, 30 min. wait/Ld./Uld.		168	.048			1.68	3.48	5.16	6.40
52	cycle 1 mile		144	.056			1.96	4.06	6.02	7.45
53	cycle 2 miles		120	.067			2.35	4.87	7.22	8.90
54	cycle 4 miles									

31 23 Excavation and Fill

31 23 23 - Fill

31 23 23.20 Hauling		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total
							Labor	Equipment	
1622	cycle 6 miles	B-34B	108	.074	L.C.Y.		2.61	5.40	8.01
1624	cycle 8 miles		84	.095			3.36	6.95	10.31
1625	cycle 10 miles		84	.095			3.36	6.95	10.31
1626	20 MPH ave, cycle 0.5 mile		180	.044			1.57	3.25	4.82
1628	cycle 1 mile		168	.048			1.68	3.48	5.16
1630	cycle 2 miles		156	.051			1.81	3.75	5.56
1632	cycle 4 miles		132	.061			2.14	4.43	6.57
1634	cycle 6 miles		120	.067			2.35	4.87	7.22
1636	cycle 8 miles		108	.074			2.61	5.40	8.01
1638	cycle 10 miles		96	.083			2.94	6.10	9.04
1640	25 MPH ave, cycle 4 miles		144	.056			1.96	4.06	6.02
1642	cycle 6 miles		132	.061			2.14	4.43	6.57
1644	cycle 8 miles		108	.074			2.61	5.40	8.01
1646	cycle 10 miles		108	.074			2.61	5.40	8.01
1650	30 MPH ave, cycle 4 miles		144	.056			1.96	4.06	6.02
1652	cycle 6 miles		132	.061			2.14	4.43	6.57
1654	cycle 8 miles		120	.067			2.35	4.87	7.22
1656	cycle 10 miles		108	.074			2.61	5.40	8.01
1660	35 MPH ave, cycle 4 miles		156	.051			1.81	3.75	5.56
1662	cycle 6 miles		144	.056			1.96	4.06	6.02
1664	cycle 8 miles		132	.061			2.14	4.43	6.57
1666	cycle 10 miles		120	.067			2.35	4.87	7.22
1668	cycle 20 miles		84	.095			3.36	6.95	10.31
1669	cycle 30 miles		72	.111			3.92	8.10	12.02
1670	cycle 40 miles		60	.133			4.71	9.75	14.46
1672	40 MPH, cycle 6 miles		144	.056			1.96	4.06	6.02
1674	cycle 8 miles		132	.061			2.14	4.43	6.57
1676	cycle 10 miles		120	.067			2.35	4.87	7.22
1678	cycle 20 miles		96	.083			2.94	6.10	9.04
1680	cycle 30 miles		72	.111			3.92	8.10	12.02
1682	cycle 40 miles		60	.133			4.71	9.75	14.46
1684	cycle 50 miles		48	.167			5.90	12.20	18.10
1694	45 MPH ave, cycle 8 miles		144	.056			1.96	4.06	6.02
1696	cycle 10 miles		132	.061			2.14	4.43	6.57
1698	cycle 20 miles		96	.083			2.94	6.10	9.04
1700	cycle 30 miles		84	.095			3.36	6.95	10.31
1702	cycle 40 miles		60	.133			4.71	9.75	14.46
1704	cycle 50 miles		60	.133			4.71	9.75	14.46
1706	50 MPH ave, cycle 10 miles		132	.061			2.14	4.43	6.57
1708	cycle 20 miles		108	.074			2.61	5.40	8.01
1710	cycle 30 miles		84	.095			3.36	6.95	10.31
1712	cycle 40 miles		72	.111			3.92	8.10	12.02
1714	cycle 50 miles		60	.133			4.71	9.75	14.46
2000	Hauling, 8 C.Y. truck, small project cost per hour	B-34A	8	1	Hr.		35.50	44.50	80
2100	12 C.Y. Truck	B-34B	8	1			35.50	73	108.50
2150	16.5 C.Y. Truck	B-34C	8	1			35.50	80.50	116
2175	18 C.Y. 8 wheel Truck	B-34I	8	1			35.50	93	128.50
2200	20 C.Y. Truck	B-34D	8	1			35.50	82.50	118
2300	Grading at dump, or embankment if required, by dozer	B-10B	1000	.012	L.C.Y.		.51	1.24	1.75
2310	Spotter at fill or cut, if required	1 Clab	8	1	Hr.		35		35
9014	18 C.Y. truck, 8 wheels, 15 min. wait/Ld./Uld., 15 MPH, cycle 0.5 mi.	B-34I	504	.016	L.C.Y.		.56	1.48	2.04
9016	cycle 1 mile		450	.018			.63	1.66	2.29
9018	cycle 2 miles		378	.021			.75	1.97	2.72

23 Excavation and Fill

3 23 - Fill

11	23.20 Hauling	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
							Labor	Equipment	Total	
070	cycle 4 miles	B-341	270	.030	L.C.Y.		1.05	2.76	3.81	4.63
072	cycle 6 miles		216	.037			1.31	3.45	4.76	5.75
074	cycle 8 miles		180	.044			1.57	4.14	5.71	6.95
075	cycle 10 miles		144	.056			1.96	5.15	7.11	8.70
076	20 MPH ave, cycle 0.5 mile		522	.015			.54	1.43	1.97	2.39
078	cycle 1 mile		468	.017			.60	1.59	2.19	2.67
079	cycle 2 miles		414	.019			.68	1.80	2.48	3.01
080	cycle 4 miles		324	.025			.87	2.30	3.17	3.85
081	cycle 6 miles		252	.032			1.12	2.96	4.08	4.95
082	cycle 8 miles		216	.037			1.31	3.45	4.76	5.75
083	cycle 10 miles		180	.044			1.57	4.14	5.71	6.95
084	25 MPH ave, cycle 4 miles		342	.023			.83	2.18	3.01	3.65
085	cycle 6 miles		288	.028			.98	2.59	3.57	4.34
086	cycle 8 miles		252	.032			1.12	2.96	4.08	4.95
087	cycle 10 miles		216	.037			1.31	3.45	4.76	5.75
088	30 MPH ave, cycle 4 miles		378	.021			.75	1.97	2.72	3.30
089	cycle 6 miles		324	.025			.87	2.30	3.17	3.85
090	cycle 8 miles		270	.030			1.05	2.76	3.81	4.63
091	cycle 10 miles		234	.034			1.21	3.18	4.39	5.35
092	35 MPH ave, cycle 4 miles		396	.020			.71	1.88	2.59	3.15
093	cycle 6 miles		342	.023			.83	2.18	3.01	3.65
094	cycle 8 miles		288	.028			.98	2.59	3.57	4.34
095	cycle 10 miles		270	.030			1.05	2.76	3.81	4.63
096	cycle 20 miles		162	.049			1.74	4.60	6.34	7.70
097	cycle 30 miles		126	.063			2.24	5.90	8.14	9.90
098	cycle 40 miles		90	.089			3.14	8.30	11.44	13.85
099	40 MPH ave, cycle 6 miles		360	.022			.78	2.07	2.85	3.47
100	cycle 8 miles		324	.025			.87	2.30	3.17	3.85
101	cycle 10 miles		288	.028			.98	2.59	3.57	4.34
102	cycle 20 miles		180	.044			1.57	4.14	5.71	6.95
103	cycle 30 miles		144	.056			1.96	5.15	7.11	8.70
104	cycle 40 miles		108	.074			2.61	6.90	9.51	11.55
105	cycle 50 miles		90	.089			3.14	8.30	11.44	13.85
106	45 MPH ave, cycle 8 miles		324	.025			.87	2.30	3.17	3.85
107	cycle 10 miles		306	.026			.92	2.43	3.35	4.08
108	cycle 20 miles		198	.040			1.43	3.76	5.19	6.30
109	cycle 30 miles		144	.056			1.96	5.15	7.11	8.70
110	cycle 40 miles		126	.063			2.24	5.90	8.14	9.90
111	cycle 50 miles		108	.074			2.61	6.90	9.51	11.55
112	50 MPH ave, cycle 10 miles		324	.025			.87	2.30	3.17	3.85
113	cycle 20 miles		216	.037			1.31	3.45	4.76	5.75
114	cycle 30 miles		162	.049			1.74	4.60	6.34	7.70
115	cycle 40 miles		126	.063			2.24	5.90	8.14	9.90
116	cycle 50 miles		108	.074			2.61	6.90	9.51	11.55
117	20 min. wait/Ld./Uld., 15 MPH, cycle 0.5 mi.		396	.020			.71	1.88	2.59	3.15
118	cycle 1 mile		360	.022			.78	2.07	2.85	3.47
119	cycle 2 miles		306	.026			.92	2.43	3.35	4.08
120	cycle 4 miles		234	.034			1.21	3.18	4.39	5.35
121	cycle 6 miles		198	.040			1.43	3.76	5.19	6.30
122	cycle 8 miles		162	.049			1.74	4.60	6.34	7.70
123	cycle 10 miles		144	.056			1.96	5.15	7.11	8.70
124	20 MPH ave, cycle 0.5 mile		396	.020			.71	1.88	2.59	3.15
125	cycle 1 mile		378	.021			.75	1.97	2.72	3.30

31 23 Excavation and Fill

31 23 23 - Fill

31 23 23.20 Hauling		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
9230	cycle 2 miles	B-341	324	.025	L.C.Y.		.87	2.30	3.17
9232	cycle 4 miles		270	.030			1.05	2.76	3.81
9234	cycle 6 miles		216	.037			1.31	3.45	4.76
9236	cycle 8 miles		198	.040			1.43	3.76	5.19
9238	cycle 10 miles		162	.049			1.74	4.60	6.34
9240	25 MPH ave, cycle 4 miles		288	.028			.98	2.59	3.57
9242	cycle 6 miles		252	.032			1.12	2.96	4.08
9244	cycle 8 miles		216	.037			1.31	3.45	4.76
9246	cycle 10 miles		198	.040			1.43	3.76	5.19
9250	30 MPH ave, cycle 4 miles		306	.026			.92	2.43	3.35
9252	cycle 6 miles		270	.030			1.05	2.76	3.81
9254	cycle 8 miles		234	.034			1.21	3.18	4.39
9256	cycle 10 miles		216	.037			1.31	3.45	4.76
9260	35 MPH ave, cycle 4 miles		324	.025			.87	2.30	3.17
9262	cycle 6 miles		288	.028			.98	2.59	3.57
9264	cycle 8 miles		252	.032			1.12	2.96	4.08
9266	cycle 10 miles		234	.034			1.21	3.18	4.39
9268	cycle 20 miles		162	.049			1.74	4.60	6.34
9270	cycle 30 miles		108	.074			2.61	6.90	9.51
9272	cycle 40 miles		90	.089			3.14	8.30	11.44
9274	40 MPH ave, cycle 6 miles		288	.028			.98	2.59	3.57
9276	cycle 8 miles		270	.030			1.05	2.76	3.81
9278	cycle 10 miles		234	.034			1.21	3.18	4.39
9280	cycle 20 miles		162	.049			1.74	4.60	6.34
9282	cycle 30 miles		126	.063			2.24	5.90	8.14
9284	cycle 40 miles		108	.074			2.61	6.90	9.51
9286	cycle 50 miles		90	.089			3.14	8.30	11.44
9294	45 MPH ave, cycle 8 miles		270	.030			1.05	2.76	3.81
9296	cycle 10 miles		252	.032			1.12	2.96	4.08
9298	cycle 20 miles		180	.044			1.57	4.14	5.71
9300	cycle 30 miles		144	.056			1.96	5.15	7.11
9302	cycle 40 miles		108	.074			2.61	6.90	9.51
9304	cycle 50 miles		90	.089			3.14	8.30	11.44
9306	50 MPH ave, cycle 10 miles		270	.030			1.05	2.76	3.81
9308	cycle 20 miles		198	.040			1.43	3.76	5.19
9310	cycle 30 miles		144	.056			1.96	5.15	7.11
9312	cycle 40 miles		126	.063			2.24	5.90	8.14
9314	cycle 50 miles		108	.074			2.61	6.90	9.51
9414	25 min. wait/Ld./Uld., 15 MPH, cycle 0.5 mi.		306	.026			.92	2.43	3.35
9416	cycle 1 mile		288	.028			.98	2.59	3.57
9418	cycle 2 miles		252	.032			1.12	2.96	4.08
9420	cycle 4 miles		198	.040			1.43	3.76	5.19
9422	cycle 6 miles		180	.044			1.57	4.14	5.71
9424	cycle 8 miles		144	.056			1.96	5.15	7.11
9425	cycle 10 miles		126	.063			2.24	5.90	8.14
9426	20 MPH ave, cycle 0.5 mile		324	.025			.87	2.30	3.17
9428	cycle 1 mile		306	.026			.92	2.43	3.35
9430	cycle 2 miles		270	.030			1.05	2.76	3.81
9432	cycle 4 miles		234	.034			1.21	3.18	4.39
9434	cycle 6 miles		198	.040			1.43	3.76	5.19
9436	cycle 8 miles		180	.044			1.57	4.14	5.71
9438	cycle 10 miles		144	.056			1.96	5.15	7.11
9440	25 MPH ave, cycle 4 miles		252	.032			1.12	2.96	4.08

23 Excavation and Fill

3 23 - Fill

23.20 Hauling	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Ind O&P
						Labor	Equipment		
cycle 6 miles	B-341	216	.037	L.C.Y.		1.31	3.45	4.76	5.75
cycle 8 miles		198	.040			1.43	3.76	5.19	6.30
cycle 10 miles		180	.044			1.57	4.14	5.71	6.95
30 MPH ave, cycle 4 miles		252	.032			1.12	2.96	4.08	4.95
cycle 6 miles		234	.034			1.21	3.18	4.39	5.35
cycle 8 miles		198	.040			1.43	3.76	5.19	6.30
cycle 10 miles		180	.044			1.57	4.14	5.71	6.95
35 MPH ave, cycle 4 miles		270	.030			1.05	2.76	3.81	4.63
cycle 6 miles		234	.034			1.21	3.18	4.39	5.35
cycle 8 miles		216	.037			1.31	3.45	4.76	5.75
cycle 10 miles		198	.040			1.43	3.76	5.19	6.30
cycle 20 miles		144	.056			1.96	5.15	7.11	8.70
cycle 30 miles		108	.074			2.61	6.90	9.51	11.55
cycle 40 miles		90	.089			3.14	8.30	11.44	13.85
40 MPH ave, cycle 6 miles		252	.032			1.12	2.96	4.08	4.95
cycle 8 miles		234	.034			1.21	3.18	4.39	5.35
cycle 10 miles		216	.037			1.31	3.45	4.76	5.75
cycle 20 miles		144	.056			1.96	5.15	7.11	8.70
cycle 30 miles		126	.063			2.24	5.90	8.14	9.90
cycle 40 miles		90	.089			3.14	8.30	11.44	13.85
cycle 50 miles		90	.089			3.14	8.30	11.44	13.85
45 MPH ave, cycle 8 miles		234	.034			1.21	3.18	4.39	5.35
cycle 10 miles		216	.037			1.31	3.45	4.76	5.75
cycle 20 miles		162	.049			1.74	4.60	6.34	7.70
cycle 30 miles		126	.063			2.24	5.90	8.14	9.90
cycle 40 miles		108	.074			2.61	6.90	9.51	11.55
cycle 50 miles		90	.089			3.14	8.30	11.44	13.85
50 MPH ave, cycle 10 miles		234	.034			1.21	3.18	4.39	5.35
cycle 20 miles		180	.044			1.57	4.14	5.71	6.95
cycle 30 miles		144	.056			1.96	5.15	7.11	8.70
cycle 40 miles		108	.074			2.61	6.90	9.51	11.55
cycle 50 miles		90	.089			3.14	8.30	11.44	13.85
30 min. wait/Ld./Uld., 15 MPH, cycle 0.5 mi.		270	.030			1.05	2.76	3.81	4.63
cycle 1 mile		252	.032			1.12	2.96	4.08	4.95
cycle 2 miles		216	.037			1.31	3.45	4.76	5.75
cycle 4 miles		180	.044			1.57	4.14	5.71	6.95
cycle 6 miles		162	.049			1.74	4.60	6.34	7.70
cycle 8 miles		126	.063			2.24	5.90	8.14	9.90
cycle 10 miles		126	.063			2.24	5.90	8.14	9.90
20 MPH ave, cycle 0.5 mile		270	.030			1.05	2.76	3.81	4.63
cycle 1 mile		252	.032			1.12	2.96	4.08	4.95
cycle 2 miles		234	.034			1.21	3.18	4.39	5.35
cycle 4 miles		198	.040			1.43	3.76	5.19	6.30
cycle 6 miles		180	.044			1.57	4.14	5.71	6.95
cycle 8 miles		162	.049			1.74	4.60	6.34	7.70
cycle 10 miles		144	.056			1.96	5.15	7.11	8.70
25 MPH ave, cycle 4 miles		216	.037			1.31	3.45	4.76	5.75
cycle 6 miles		198	.040			1.43	3.76	5.19	6.30
cycle 8 miles		180	.044			1.57	4.14	5.71	6.95
cycle 10 miles		162	.049			1.74	4.60	6.34	7.70
30 MPH ave, cycle 4 miles		216	.037			1.31	3.45	4.76	5.75
cycle 6 miles		198	.040			1.43	3.76	5.19	6.30
cycle 8 miles		180	.044			1.57	4.14	5.71	6.95

31 23 Excavation and Fill

31 23 23 - Fill

31 23 23.20 Hauling		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
9656	cycle 10 miles	8-34I	162	.049	L.C.Y.		1.74	4.60	6.34
9660	35 MPH ave, cycle 4 miles		234	.034			1.21	3.18	4.39
9662	cycle 6 miles		216	.037			1.31	3.45	4.76
9664	cycle 8 miles		198	.040			1.43	3.76	5.19
9666	cycle 10 miles		180	.044			1.57	4.14	5.71
9668	cycle 20 miles		126	.063			2.24	5.90	8.14
9670	cycle 30 miles		108	.074			2.61	6.90	9.51
9672	cycle 40 miles		90	.089			3.14	8.30	11.44
9674	40 MPH ave, cycle 6 miles		216	.037			1.31	3.45	4.76
9676	cycle 8 miles		198	.040			1.43	3.76	5.19
9678	cycle 10 miles		180	.044			1.57	4.14	5.71
9680	cycle 20 miles		144	.056			1.96	5.15	7.11
9682	cycle 30 miles		108	.074			2.61	6.90	9.51
9684	cycle 40 miles		90	.089			3.14	8.30	11.44
9686	cycle 50 miles		72	.111			3.92	10.35	14.27
9694	45 MPH ave, cycle 8 miles		216	.037			1.31	3.45	4.76
9696	cycle 10 miles		198	.040			1.43	3.76	5.19
9698	cycle 20 miles		144	.056			1.96	5.15	7.11
9700	cycle 30 miles		126	.063			2.24	5.90	8.14
9702	cycle 40 miles		108	.074			2.61	6.90	9.51
9704	cycle 50 miles		90	.089			3.14	8.30	11.44
9706	50 MPH ave, cycle 10 miles		198	.040			1.43	3.76	5.19
9708	cycle 20 miles		162	.049			1.74	4.60	6.34
9710	cycle 30 miles		126	.063			2.24	5.90	8.14
9712	cycle 40 miles		108	.074			2.61	6.90	9.51
9714	cycle 50 miles		90	.089			3.14	8.30	11.44

31 23 23.24 Compaction, Structural

0010	COMPACTION, STRUCTURAL	R312323-30							
0020	Steel wheel tandem roller, 5 tons	8-10E	8	1.500	Hr.		64	18.65	82.65
0100	10 tons	8-10F	8	1.500	"		64	28.50	92.50
0300	Sheepsfoot or wobbly wheel roller, 8" lifts, common fill	8-10G	1300	.009	E.C.Y.		.39	.85	1.24
0400	Select fill	"	1500	.008			.34	.73	1.07
0600	Vibratory plate, 8" lifts, common fill	A-1D	200	.040			1.40	.16	1.56
0700	Select fill	"	216	.037			1.30	.15	1.45

31 25 Erosion and Sedimentation Controls

31 25 14 - Stabilization Measures for Erosion and Sedimentation Control

31 25 14.16 Rolled Erosion Control Mats and Blankets

0010	ROLLED EROSION CONTROL MATS AND BLANKETS								
0020	Jute mesh, 100 S.Y. per roll, 4' wide, stapled	G	8-80A	2400	.010	S.Y.	.60	.35	.11
0070	Paper biodegradable mesh	G	B-1	2500	.010		.12	.34	.46
0080	Paper mulch	G	8-64	20000	.001		.09	.03	.14
0100	Plastic netting, stapled, 2" x 1" mesh, 20 mil	G	B-1	2500	.010		.34	.34	.68
0200	Polypropylene mesh, stapled, 6.5 oz./S.Y.	G		2500	.010		1.32	.34	1.66
0300	Tobacco netting, or jute mesh #2, stapled	G		2500	.010		.12	.34	.46
1000	Silt fence, polypropylene, 3' high, ideal conditions	G	2 Clab	1600	.010	L.F.	.25	.35	.60
1100	Adverse conditions	G	"	950	.017	"	.25	.59	.84
1200	Place and remove hay bales	G	A-2	3	8	Ton	265	279	70.50
1250	Hay bales, staked	G	"	2500	.010	L.F.	10.60	.33	.08

31 Soil Treatment

116 - Termite Control

16.13 Chemical Termite Control

CHEMICAL TERMITE CONTROL

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Slab and walls, residential	1 Skwk	1200	.007	SF Flr.	.33	.30		.63	.83
Commercial, minimum		2496	.003		.33	.15		.48	.59
Maximum		1645	.005		.50	.22		.72	.88
Insecticides for termite control, minimum		14.20	.563	Gol.	59	25.50		84.50	105
Maximum		11	.727	"	101	33		134	162

32 Soil Stabilization

213 - Soil Mixing Stabilization

13.30 Calcium Chloride

CALCIUM CHLORIDE

Calcium chloride delivered, 100 lb. bags, truckload lots				Ton	360			360	395
Solution, 4 lb. floke per gallon, tank truck delivery				Gol.	1.44			1.44	1.58

33 Rock Stabilization

313 - Rock Bolting and Grouting

13.10 Rock Bolting

ROCK BOLTING

Hollow core, prestressable anchor, 1" diameter, 5' long	2 Skwk	32	.500	Eq.	104	22.50		126.50	150
10' long		24	.667		209	30.50		239.50	277
2" diameter, 5' long		32	.500		400	22.50		422.50	470
10' long		24	.667		780	30.50		810.50	905
Super high-tensile, 3/4" diameter, 5' long		32	.500		23.50	22.50		46	61
10' long		24	.667		47.50	30.50		78	99
2" diameter, 5' long		32	.500		211	22.50		233.50	267
10' long		24	.667		420	30.50		450.50	510
Drill hole for rock bolt, 1-3/4" diam., 5' long (for 3/4" bolt)	B-56	17	.941			37.50	83.50	121	149
10' long		9	1.778			71	158	229	282
2" diameter, 5' long (for 1" bolt)		13	1.231			49	109	158	195
10' long		7	2.286			91.50	203	294.50	360
3-1/2" diameter, 5' long (for 2" bolt)		10	1.600			64	142	206	254
10' long		5	3.200			128	284	412	505

36 Gabions

613 - Gabion Boxes

13.10 Gabion Box Systems

GABION BOX SYSTEMS

Gabions, galvanized steel mesh mats or boxes, stone filled, 6" deep	B-13	200	.280	S.Y.	29.50	10.65	3.49	43.64	52.50
9" deep		163	.344		37	13.10	4.28	54.38	65
12" deep		153	.366		54	13.95	4.56	72.51	86
18" deep		102	.549		71.50	21	6.85	99.35	118
36" deep		60	.933		116	35.50	11.60	163.10	195

31 37 Riprap

31 37 13 – Machined Riprap

31 37 13.10 Riprap and Rock Lining

0010	RIPRAP AND ROCK LINING	Crew	Daily Output	Labor-Hours	Unit	2012 Base Costs			Total
						Material	Labor	Equipment	
0011	Random, broken stone								
0100	Machine placed for slope protection	B-12G	62	.258	L.C.Y.	31.50	10.70	11.05	53.25
0110	3/8 to 1/4 C.Y. pieces, grouted	B-13	80	.700	S.Y.	67.50	26.50	8.70	102.70
0200	18" minimum thickness, not grouted	"	53	1.057	"	19.75	40	13.15	72.90
0300	Dumped, 50 lb. average	B-11A	800	.020	Ton	23.50	.82	1.55	25.87
0350	100 lb. average		700	.023		23.50	.93	1.78	26.21
0370	300 lb. average	▼	600	.027	▼	23.50	1.09	2.07	26.66

31 41 Shoring

31 41 13 – Timber Shoring

31 41 13.10 Building Shoring

0010 BUILDING SHORING		Crew	Daily Output	Labor-Hours	Unit	2012 Base Costs			Total
						Material	Labor	Equipment	
0020	Shoring, existing building, with timber, no salvage allowance	B-51	2.20	21.818	M.B.F.	640	770	96	1,506
1000	On cribbing with 35 ton screw jacks, per box and jack	"	3.60	13.333	Jack	66	470	58.50	594.50

31 41 16 – Sheet Piling

31 41 16.10 Sheet Piling Systems

0010 SHEET PILING SYSTEMS		Crew	Daily Output	Labor-Hours	Unit	2012 Base Costs			Total
						Material	Labor	Equipment	
0020	Sheet piling steel, nat incl. wales, 22 psf, 15' excav., left in place	B-40	10.81	5.920	Ton	1,525	261	320	2,106
0100	Drive, extract & salvage		6	10.667		530	470	575	1,575
0300	20' deep excavation, 27 psf, left in place		12.95	4.942		1,525	218	266	2,009
0400	Drive, extract & salvage		6.55	9.771		530	430	525	1,485
0600	25' deep excavation, 38 psf, left in place		19	3.368		1,525	149	182	1,856
0700	Drive, extract & salvage		10.50	6.095		530	269	330	1,129
0900	40' deep excavation, 38 psf, left in place		21.20	3.019		1,525	133	163	1,821
1000	Drive, extract & salvage		12.25	5.224		530	230	282	1,042
1200	15' deep excavation, 22 psf, left in place		983	.065	S.F.	17.65	2.87	3.51	24.03
1300	Drive, extract & salvage		545	.117		5.95	5.20	6.35	17.50
1500	20' deep excavation, 27 psf, left in place		960	.067		22	2.94	3.59	28.53
1600	Drive, extract & salvage		485	.132		7.75	5.80	7.10	20.65
1800	25' deep excavation, 38 psf, left in place		1000	.064		32.50	2.82	3.45	38.77
1900	Drive, extract & salvage	▼	553	.116	▼	10.65	5.10	6.25	22
2100	Rent steel sheet piling and wales, first month				Ton	305			305
2200	Per added month					30.50			30.50
2300	Rental piling left in place, add to rental					1,225			1,225
2500	Wales, connections & struts, 2/3 salvage					485			485
2700	High strength piling, 50,000 psi, add					70			70
2800	55,000 psi, add					79.50			79.50
3000	Tie rod, nat upset, 1-1/2" to 4" diameter with turnbuckle					2,200			2,200
3100	No turnbuckle					1,725			1,725
3300	Upset, 1-3/4" to 4" diameter with turnbuckle					2,500			2,500
3400	No turnbuckle				▼	2,175			2,175
3600	Lightweight, 18" to 28" wide, 7 ga., 9.22 psf, and								
3610	9 ga., 8.6 psf, minimum				Lb.	.91			.91
3700	Average					.99			.99
3750	Maximum				▼	1.13			1.13
3900	Wood, solid sheathing, incl. wales, braces and spacers,								
3910	drive, extract & salvage, 8' deep excavation	B-31	330	.121	S.F.	1.56	4.52	.59	6.67
4000	10' deep, 50 S.F./hr. in & 150 S.F./hr. out		300	.133		1.61	4.97	.65	7.23
4100	12' deep, 45 S.F./hr. in & 135 S.F./hr. out	▼	270	.148	▼	1.66	5.55	.72	7.93

41 Shoring

116 - Sheet Piling

16.10 Sheet Piling Systems

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
14' deep, 42 S.F./hr. in & 126 S.F./hr. out	B-31	250	.160	S.F.	1.71	5.95	.78	8.44	11.95
16' deep, 40 S.F./hr. in & 120 S.F./hr. out		240	.167		1.76	6.20	.81	8.77	12.40
18' deep, 38 S.F./hr. in & 114 S.F./hr. out		230	.174		1.82	6.50	.85	9.17	12.95
20' deep, 35 S.F./hr. in & 105 S.F./hr. out		210	.190		1.88	7.10	.93	9.91	14.05
Left in place, 8' deep, 55 S.F./hr.		440	.091		2.82	3.39	.44	6.65	8.80
10' deep, 50 S.F./hr.		400	.100		2.96	3.73	.49	7.18	9.55
12' deep, 45 S.F./hr.		360	.111		3.13	4.14	.54	7.81	10.45
14' deep, 42 S.F./hr.		335	.119		3.31	4.45	.58	8.34	11.15
16' deep, 40 S.F./hr.		320	.125		3.52	4.66	.61	8.79	11.70
18' deep, 38 S.F./hr.		305	.131		3.75	4.89	.64	9.28	12.40
20' deep, 35 S.F./hr.		280	.143		4.02	5.35	.70	10.07	13.40
Alternate pricing, left in place, 8' deep		1.76	22.727	M.B.F.	635	850	111	1,596	2,125
Drive, extract and salvage, 8' deep	▼	1.32	30.303	"	565	1,125	148	1,838	2,525
For treated lumber add cost of treatment to lumber									

43 Concrete Raising

13.13 - Pressure Grouting

13.13 Concrete Pressure Grouting

CONCRETE PRESSURE GROUTING

Grouting, pressure, cement & sand, 1:1 mix, minimum	B-61	124	.323	Bag	14.10	12.05	2.64	28.79	37
Maximum		51	.784	"	14.10	29.50	6.40	50	67.50
Cement and sand, 1:1 mix, minimum		250	.160	C.F.	28	6	1.31	35.31	41.50
Maximum		100	.400		42.50	14.95	3.27	60.72	73
Epoxy cement grout, minimum		137	.292		560	10.95	2.39	573.34	635
Maximum	▼	57	.702	▼	560	26.50	5.75	592.25	660
Alternate pricing method: (Add for materials)									
5 person crew and equipment	B-61	1	40	Day		1,500	325	1,825	2,650

45 Vibroflotation and Densification

15.13 - Vibroflotation

13.10 Vibroflotation Densification

VIBROFLOTATION DENSIFICATION

	R314513-90								
Vibroflotation compacted sand cylinder, minimum	B-60	750	.075	V.L.F.		3.05	2.82	5.87	7.75
Maximum		325	.172			7.05	6.50	13.55	17.85
Vibro replacement compacted stone cylinder, minimum		500	.112			4.57	4.23	8.80	11.60
Maximum		250	.224	▼		9.15	8.45	17.60	23
Mobilization and demobilization, minimum		.47	119	Total		4,875	4,500	9,375	12,400
Maximum	▼	.14	400	"		16,300	15,100	31,400	41,400

31 46 Needle Beams

31 46 13 – Cantilever Needle Beams

31 46 13.10 Needle Beams		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
NEEDLE BEAMS							Labor	Equipment	
0010	NEEDLE BEAMS								
0011	Incl. wood shoring 10' x 10' opening								
0400	Block, concrete, 8" thick	B-9	7.10	5.634	Eq.	48	200	29.50	277.50
0420	12" thick		6.70	5.970		56	212	31	299
0800	Brick, 4" thick with 8" backup block		5.70	7.018		56	249	36.50	341.50
1000	Brick, solid, 8" thick		6.20	6.452		48	229	33.50	310.50
1040	12" thick		4.90	8.163		56	290	42.50	388.50
1080	16" thick		4.50	8.889		71.50	315	46.50	433
2000	Add for additional floors of shoring	B-1	6	4		48	143		191

31 48 Underpinning

31 48 13 – Underpinning Piers

31 48 13.10 Underpinning Foundations

31 48 13.10 UNDERPINNING FOUNDATIONS									
0010	UNDERPINNING FOUNDATIONS								
0011	Including excavation,								
0020	forming, reinforcing, concrete and equipment								
0100	5' to 16' below grade, 100 to 500 C.Y.	B-52	2.30	24.348	C.Y.	272	995	241	1,508
0200	Over 500 C.Y.		2.50	22.400		245	915	221	1,381
0400	16' to 25' below grade, 100 to 500 C.Y.		2	28		299	1,150	277	1,726
0500	Over 500 C.Y.		2.10	26.667		283	1,100	263	1,646
0700	26' to 40' below grade, 100 to 500 C.Y.		1.60	35		325	1,425	345	2,095
0800	Over 500 C.Y.		1.80	31.111		299	1,275	305	1,879
0900	For under 50 C.Y., add					10%	40%		
1000	For 50 C.Y. to 100 C.Y., add					5%	20%		

31 52 Cofferdams

31 52 16 – Timber Cofferdams

31 52 16.10 Cofferdams

31 52 16.10 COFFERDAMS									
0010	COFFERDAMS								
0011	Incl. mobilization and temporary sheeting								
0080	Soldier beams & lagging H piles with 3" wood sheeting								
0090	horizontal between piles, including removal of wales & braces								
0100	No hydrostatic head, 15' deep, 1 line of braces, minimum	B-50	545	.206	S.F.	6.40	8.65	4.26	19.31
0200	Maximum		495	.226		7.10	9.50	4.69	21.29
0400	15' to 22' deep with 2 lines of braces, 10" H, minimum		360	.311		7.50	13.10	6.45	27.05
0500	Maximum		330	.339		8.50	14.25	7.05	29.80
0700	23' to 35' deep with 3 lines of braces, 12" H, minimum		325	.345		9.80	14.50	7.15	31.45
0800	Maximum		295	.380		10.65	15.95	7.85	34.45
1000	36' to 45' deep with 4 lines of braces, 14" H, minimum		290	.386		11	16.25	8	35.25
1100	Maximum		265	.423		11.60	17.75	8.75	38.10
1300	No hydrostatic head, left in place, 15' dp., 1 line of braces, min.		635	.176		8.50	7.40	3.65	19.55
1400	Maximum		575	.195		9.10	8.20	4.04	21.34
1600	15' to 22' deep with 2 lines of braces, minimum		455	.246		12.75	10.35	5.10	28.20
1700	Maximum		415	.270		14.20	11.35	5.60	31.15
1900	23' to 35' deep with 3 lines of braces, minimum		420	.267		15.20	11.20	5.55	31.95
2000	Maximum		380	.295		16.80	12.40	6.10	35.30
2200	36' to 45' deep with 4 lines of braces, minimum		385	.291		18.25	12.25	6.05	36.55
2300	Maximum		350	.320		21.50	13.45	6.65	41.60
2350	Lagging only, 3" thick wood between piles 8' O.C., minimum	B-46	400	.120		1.42	4.71	.11	6.24

52 Cofferdams

2 16 – Timber Cofferdams

16.10 Cofferdams	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Maximum	B-46	250	.192	S.F.	2.13	7.55	.17	9.85	14.45
Open sheeting no bracing, for trenches to 10' deep, min.		1736	.028		.64	1.09	.03	1.76	2.44
Maximum	↓	1510	.032		.71	1.25	.03	1.99	2.78
Tie-back method, add to open sheeting, add, minimum								20%	20%
Maximum								60%	60%
Tie-backs only, based on tie-backs total length, minimum	B-46	86.80	.553	L.F.	14	21.50	.50	36	50.50
Maximum		38.50	1.247	"	24.50	49	1.13	74.63	105
Tie-backs only, typical average, 25' long		2	24	Ea.	615	945	22	1,582	2,175
35' long	↓	1.58	30.380	"	820	1,200	27.50	2,047.50	2,800

56 Slurry Walls

6 23 – Lean Concrete Slurry Walls

23.20 Slurry Trench									
SLURRY TRENCH									
Excavated slurry trench in wet soils backfilled with 3000 PSI concrete, no reinforcing steel									
Minimum	C-7	333	.216	C.F.	7.55	8.25	3.54	19.34	24.50
Maximum	↓	200	.360	"	12.65	13.70	5.90	32.25	41.50
Alternate pricing method, minimum		150	.480	S.F.	15.10	18.30	7.85	41.25	53.50
Maximum	↓	120	.600		22.50	23	9.80	55.30	71
Reinforced slurry trench, minimum	B-48	177	.316		11.35	12.50	15.65	39.50	49
Maximum	"	69	.812	↓	38	32	40	110	135
Haul for disposal, 2 mile haul, excavated material, add	B-34B	99	.081	C.Y.		2.85	5.90	8.75	10.85
Haul bentonite castings for disposal, add	"	40	.200	"		7.05	14.60	21.65	27

62 Driven Piles

2 13 – Concrete Piles

13.23 Prestressed Concrete Piles									
PRESTRESSED CONCRETE PILES, 200 piles									
Unless specified otherwise, not incl. pile caps or mobilization									
Precast, prestressed, 50' long, 12" diam., 2-3/8" wall	B-19	720	.089	V.L.F.	21.50	3.92	2.54	27.96	33
14" diameter, 2-1/2" wall	↓	680	.094		29	4.15	2.69	35.84	41.50
16" diameter, 3" wall	↓	640	.100		41.50	4.41	2.86	48.77	55.50
18" diameter, 3" wall	B-19A	600	.107		52	4.71	3.72	60.43	69
20" diameter, 3-1/2" wall	↓	560	.114		62.50	5.05	3.99	71.54	81.50
24" diameter, 3-1/2" wall	↓	520	.123		71	5.45	4.30	80.75	91
Precast, prestressed, 40' long, 10" thick, square	B-19	700	.091		15.85	4.03	2.62	22.50	26.50
12" thick, square	↓	680	.094		20	4.15	2.69	26.84	31.50
14" thick, square	↓	600	.107		23.50	4.71	3.05	31.26	36.50
Octagonal	↓	640	.100		32	4.41	2.86	39.27	45
16" thick, square	↓	560	.114		37	5.05	3.27	45.32	52
Octagonal	↓	600	.107		38.50	4.71	3.05	46.26	53.50
18" thick, square	B-19A	520	.123		44.50	5.45	4.30	54.25	62
Octagonal	B-19	560	.114		45.50	5.05	3.27	53.82	61.50
20" thick, square	B-19A	480	.133		55.50	5.90	4.65	66.05	75.50
Octagonal	B-19	520	.123		50.50	5.45	3.52	59.47	68
24" thick, square	B-19A	440	.145		78.50	6.40	5.10	90	102
Octagonal	B-19	480	.133		72.50	5.90	3.82	82.22	93
Precast, prestressed, 60' long, 10" thick, square	↓	700	.091	↓	16.65	4.03	2.62	23.30	27.50

31 62 Driven Piles

31 62 13 - Concrete Piles

31 62 13.23 Prestressed Concrete Piles

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
4740	12" thick, square (60' long)	B-19	680	.094	V.L.F.	21	4.15	2.69	27.84
4750	Mobilization for 10,000 L.F. pile job, odd		3300	.019			.86	.55	1.41
4800	25,000 L.F. pile job, odd		8500	.008			.33	.22	.55

31 62 16 - Steel Piles

31 62 16.13 Steel Piles

0010	STEEL PILES								
0100	Step tapered, round, concrete filled								
0110	8" tip, 60 ton capacity, 30' depth	B-19	760	.084	V.L.F.	10.50	3.71	2.41	16.62
0120	60' depth		740	.086		11.90	3.82	2.48	18.20
0130	80' depth		700	.091		12.30	4.03	2.62	18.95
0150	10" tip, 90 ton capacity, 30' depth		700	.091		12.60	4.03	2.62	19.25
0160	60' depth		690	.093		13	4.09	2.65	19.74
0170	80' depth		670	.096		14	4.21	2.73	20.94
0190	12" tip, 120 ton capacity, 30' depth		660	.097		17.05	4.28	2.78	24.11
0200	60' depth, 12" diameter		630	.102		17	4.48	2.91	24.39
0210	80' depth		590	.108		15.70	4.78	3.10	23.58
0250	"H" Sections, 50' long, HP8 x 36		640	.100		19.30	4.41	2.86	26.57
0400	HP10 X 42		610	.105		22.50	4.63	3	30.13
0500	HP10 X 57		610	.105		30.50	4.63	3	38.13
0700	HP12 X 53		590	.108		29	4.78	3.10	36.88
0800	HP12 X 74	B-19A	590	.108		40.50	4.78	3.79	49.07
1000	HP14 X 73		540	.119		39.50	5.25	4.14	48.89
1100	HP14 X 89		540	.119		49	5.25	4.14	58.39
1300	HP14 X 102		510	.125		56	5.55	4.38	65.93
1400	HP14 X 117		510	.125		64	5.55	4.38	73.93
1600	Splice on standard points, not in leads, 8" or 10"	1 Sswl	5	1.600	Eq.	127	79		206
1700	12" or 14"		4	2		185	98.50		283.50
1900	Heavy duty points, not in leads, 10" wide		4	2		196	98.50		294.50
2100	14" wide		3.50	2.286		254	113		367

31 62 19 - Timber Piles

31 62 19.10 Wood Piles

0010	WOOD PILES								
0011	Friction or end bearing, not including								
0050	mobilization or demobilization								
0100	Untreated piles, up to 30' long, 12" butts, 8" points	B-19	625	.102	V.L.F.	20	4.52	2.93	27.45
0200	30' to 39' long, 12" butts, 8" points		700	.091		20	4.03	2.62	26.65
0300	40' to 49' long, 12" butts, 7" points		720	.089		20	3.92	2.54	26.46
0400	50' to 59' long, 13" butts, 7" points		800	.080		20	3.53	2.29	25.82
0500	60' to 69' long, 13" butts, 7" points		840	.076		22.50	3.36	2.18	28.04
0600	70' to 80' long, 13" butts, 6" points		840	.076		25	3.36	2.18	30.54
0800	Treated piles, 12 lb. per C.F.,								
0810	friction or end bearing, ASTM class B								
1000	Up to 30' long, 12" butts, 8" points	B-19	625	.102	V.L.F.	18.60	4.52	2.93	26.05
1100	30' to 39' long, 12" butts, 8" points		700	.091		20	4.03	2.62	26.65
1200	40' to 49' long, 12" butts, 7" points		720	.089		20	3.92	2.54	26.46
1300	50' to 59' long, 13" butts, 7" points		800	.080		21	3.53	2.29	26.82
1400	60' to 69' long, 13" butts, 6" points	B-19A	840	.076		30	3.36	2.66	36.02
1500	70' to 80' long, 13" butts, 6" points	"	840	.076		32	3.36	2.66	38.02
1600	Treated piles, C.C.A., 2.5# per C.F.								
1610	8" butts, 10' long	B-19	400	.160	V.L.F.	20	7.05	4.58	31.63
1620	11' to 16' long		500	.128		20	5.65	3.66	29.31
1630	17' to 20' long		575	.111		20	4.91	3.19	28.10

62 Driven Piles

2 19 – Timber Piles

19.10 Wood Piles	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Ind O&P
						Labor	Equipment	Total	
10" butts, 10' to 16' long	B-19	500	.128	V.L.F.	20	5.65	3.66	29.31	35
17' to 20' long		575	.111		20	4.91	3.19	28.10	33
21' to 40' long		700	.091		20	4.03	2.62	26.65	31
12" butts, 10' to 20' long		575	.111		20	4.91	3.19	28.10	33
21' to 35' long		650	.098		20	4.34	2.82	27.16	32
36' to 40' long		700	.091		20	4.03	2.62	26.65	31
14" butts, to 40' long		700	.091		25	4.03	2.62	31.65	36.50
Boot for pile tip, minimum	1 Pile	27	.296	Eo.	24.50	12.70		37.20	47.50
Maximum		21	.381		73.50	16.30		89.80	107
Point for pile tip, minimum		20	.400		24.50	17.10		41.60	54.50
Maximum		15	.533		88.50	23		111.50	134
Splice for piles over 50' long, minimum	B-46	35	1.371		61.50	54	1.25	116.75	154
Maximum		20	2.400		73.50	94.50	2.18	170.18	232
Concrete encasement with wire mesh and tube		331	.145	V.L.F.	11.55	5.70	.13	17.38	22
Mobilization for 10,000 L.F. pile job, odd	B-19	3300	.019			.86	.55	1.41	1.95
25,000 L.F. pile job, odd	"	8500	.008			.33	.22	.55	.76

2 23 – Composite Piles

23.13 Concrete-Filled Steel Piles									
CONCRETE-FILLED STEEL PILES no mobilization or demobilization									
Pipe piles, 50' lg. 8" diam., 29 lb. per L.F., no concrete	B-19	500	.128	V.L.F.	20.50	5.65	3.66	29.81	35.50
Concrete filled		460	.139		21.50	6.15	3.98	31.63	37.50
10" diameter, 34 lb. per L.F., no concrete		500	.128		25.50	5.65	3.66	34.81	41
Concrete filled		450	.142		27.50	6.25	4.07	37.82	45
12" diameter, 44 lb. per L.F., no concrete		475	.135		31	5.95	3.86	40.81	48
Concrete filled		415	.154		32	6.80	4.41	43.21	51
14" diameter, 46 lb. per L.F., no concrete		430	.149		33.50	6.55	4.26	44.31	52
Concrete filled		355	.180		34.50	7.95	5.15	47.60	56
16" diameter, 52 lb. per L.F., no concrete		385	.166		37	7.35	4.76	49.11	58
Concrete filled		335	.191		39.50	8.45	5.45	53.40	62
18" diameter, 59 lb. per L.F., no concrete		355	.180		49	7.95	5.15	62.10	71.50
Concrete filled		310	.206		55	9.10	5.90	70	81.50
Splices for pipe piles, not in leads, 8" diameter	1 Sswl	4.67	1.713	Eo.	91	84.50		175.50	251
14" diameter		3.79	2.111		119	104		223	315
16" diameter		3.03	2.640		147	130		277	395
Points, standard, 8" diameter		4.61	1.735		149	85.50		234.50	315
14" diameter		4.05	1.975		207	97.50		304.50	400
16" diameter		3.37	2.374		252	117		369	485
Points, heavy duty, 10" diameter		2.89	2.768		295	137		432	570
14" or 16" diameter		2.02	3.960		470	195		665	865
For reinforcing steel, odd		1150	.007	Lb.	.83	.34		1.17	1.52
For thick wall sections, odd				"	.93			.93	1.02

31 63 Bored Piles

31 63 26 - Drilled Caissons

31 63 26.13 Fixed End Caisson Piles

			Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	
								Labor	Equipment		
0010	FIXED END CAISSON PILES	R316326-60									
0015	Including excavation, concrete, 50 lb. reinforcing										
0020	per C.Y., not incl. mobilization, boulder removal, disposal										
0100	Open style, machine drilled, to 50' deep, in stable ground, no										
0110	casings or ground water, 18" diam., 0.065 C.Y./L.F.										
0200	24" diameter, 0.116 C.Y./L.F.										
0300	30" diameter, 0.182 C.Y./L.F.										
0400	36" diameter, 0.262 C.Y./L.F.										
0500	48" diameter, 0.465 C.Y./L.F.										
0600	60" diameter, 0.727 C.Y./L.F.										
0700	72" diameter, 1.05 C.Y./L.F.										
0800	84" diameter, 1.43 C.Y./L.F.										
1000	Far bell excavation and concrete, odd										
1020	4' bell diameter, 24" shaft, 0.444 C.Y.										
1040	6' bell diameter, 30" shaft, 1.57 C.Y.										
1060	8' bell diameter, 36" shaft, 3.72 C.Y.										
1080	9' bell diameter, 48" shaft, 4.48 C.Y.										
1100	10' bell diameter, 60" shaft, 5.24 C.Y.										
1120	12' bell diameter, 72" shaft, 8.74 C.Y.										
1140	14' bell diameter, 84" shaft, 13.6 C.Y.										
1200	Open style, machine drilled, to 50' deep, in wet ground, pulled										
1300	casing and pumping, 18" diameter, 0.065 C.Y./L.F.										
1400	24" diameter, 0.116 C.Y./L.F.										
1500	30" diameter, 0.182 C.Y./L.F.										
1600	36" diameter, 0.262 C.Y./L.F.										
1700	48" diameter, 0.465 C.Y./L.F.										
1800	60" diameter, 0.727 C.Y./L.F.										
1900	72" diameter, 1.05 C.Y./L.F.										
2000	84" diameter, 1.43 C.Y./L.F.										
2100	Far bell excavation and concrete, odd										
2120	4' bell diameter, 24" shaft, 0.444 C.Y.										
2140	6' bell diameter, 30" shaft, 1.57 C.Y.										
2160	8' bell diameter, 36" shaft, 3.72 C.Y.										
2180	9' bell diameter, 48" shaft, 4.48 C.Y.										
2200	10' bell diameter, 60" shaft, 5.24 C.Y.										
2220	12' bell diameter, 72" shaft, 8.74 C.Y.										
2240	14' bell diameter, 84" shaft, 13.6 C.Y.										
2300	Open style, machine drilled, to 50' deep, in soft rocks and										
2400	medium hard shales, 18" diameter, 0.065 C.Y./L.F.										
2500	24" diameter, 0.116 C.Y./L.F.										
2600	30" diameter, 0.182 C.Y./L.F.										
2700	36" diameter, 0.262 C.Y./L.F.										
2800	48" diameter, 0.465 C.Y./L.F.										
2900	60" diameter, 0.727 C.Y./L.F.										
3000	72" diameter, 1.05 C.Y./L.F.										
3100	84" diameter, 1.43 C.Y./L.F.										
3200	Far bell excavation and concrete, odd										
3220	4' bell diameter, 24" shaft, 0.444 C.Y.										
3240	6' bell diameter, 30" shaft, 1.57 C.Y.										
3260	8' bell diameter, 36" shaft, 3.72 C.Y.										
3280	9' bell diameter, 48" shaft, 4.48 C.Y.										
3300	10' bell diameter, 60" shaft, 5.24 C.Y.										
3320	12' bell diameter, 72" shaft, 8.74 C.Y.										

63 Bored Piles

26 – Drilled Caissons

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
							Labor	Equipment	Total	
16	26.13 Fixed End Caisson Piles									
140	14" bell diameter, 84" shaft, 13.6 C.Y.	B-49	.40	220	Ea.	1,375	9,025	8,675	19,075	25,000
100	For rack excavation, sockets, add, minimum		120	.733	C.F.		30	29	59	78
130	Average		95	.926			38	36.50	74.50	98.50
100	Maximum	↓	48	1.833	↓		75	72.50	147.50	196
100	For 50' to 100' deep, add				V.L.F.				7%	7%
100	For 100' to 150' deep, add								25%	25%
100	For 150' to 200' deep, add								30%	30%
200	For casings left in place, add				Lb.	1.04			1.04	1.14
300	For other than 50 lb. reinf. per C.Y., add or deduct				"	1.03			1.03	1.13
100	For steel "I" beam caissons, add	B-49	8.30	10.602	Ton	2,000	435	420	2,855	3,325
500	Load and haul excess excavation, 2 miles	B-34B	178	.045	L.C.Y.		1.59	3.28	4.87	6
500	For mobilization, 50 mile radius, rig to 36"	B-43	2	24	Ea.		925	1,225	2,150	2,775
500	Rig to 84"	B-48	1.75	32			1,275	1,575	2,850	3,675
700	For low headroom, add								50%	
800	Battam inspection	1 Skwk	1.20	6.667	↓		305		305	470

26.16 Concrete Caissons for Marine Construction

100	CONCRETE CAISSONS FOR MARINE CONSTRUCTION									
100	Caissons, incl. mobilization and demobilization, up to 50 miles									
200	Uncased shafts, 30 to 80 tons cap., 17" diam., 10' depth	B-44	88	.727	V.L.F.	20.50	31.50	20	72	94.50
300	25' depth		165	.388		14.55	16.80	10.80	42.15	54.50
400	80-150 ton capacity, 22" diameter, 10' depth		80	.800		25.50	34.50	22.50	82.50	107
500	20' depth		130	.492		20.50	21.50	13.70	55.70	71
700	Cased shafts, 10 to 30 ton capacity, 10-5/8" diam., 20' depth		175	.366		14.55	15.85	10.15	40.55	52.50
800	30' depth		240	.267		13.60	11.55	7.40	32.55	41.50
900	30 to 60 ton capacity, 12" diameter, 20' depth		160	.400		20.50	17.35	11.10	48.95	62.50
1000	40' depth		230	.278		15.70	12.05	7.75	35.50	44.50
1000	80 to 100 ton capacity, 16" diameter, 20' depth		160	.400		29	17.35	11.10	57.45	72
1000	40' depth		230	.278		27	12.05	7.75	46.80	57.50
2000	110 to 140 ton capacity, 17-5/8" diameter, 20' depth		160	.400		31.50	17.35	11.10	59.95	74.50
3000	40' depth		230	.278		29	12.05	7.75	48.80	59.50
4000	140 to 175 ton capacity, 19" diameter, 20' depth		130	.492		34	21.50	13.70	69.20	86
5000	40' depth	↓	210	.305	↓	31.50	13.20	8.50	53.20	65
9000	Over 30' long, L.F. cost tends to be lower									
9000	Maximum depth is about 90'									

29 – Drilled Concrete Piers and Shafts

29.13 Uncased Drilled Concrete Piers

100	UNCASED DRILLED CONCRETE PIERS									
100	Unless specified otherwise, not incl. pile caps or mobilization									
100	Cast in place augered piles, no casing or reinforcing									
100	8" diameter	B-43	540	.089	V.L.F.	3.92	3.43	4.52	11.87	14.55
100	10" diameter		480	.100		6.25	3.86	5.10	15.21	18.35
100	12" diameter		420	.114		8.80	4.41	5.80	19.01	23
100	14" diameter		360	.133		11.85	5.15	6.80	23.80	28.50
100	16" diameter		300	.160		15.95	6.15	8.15	30.25	36
100	18" diameter	↓	240	.200	↓	19.75	7.70	10.15	37.60	44.50
100	Cast in place, thin wall shell pile, straight sided,									
100	not incl. reinforcing, 8" diam., 16 ga., 5.8 lb./L.F.	B-19	700	.091	V.L.F.	9.05	4.03	2.62	15.70	19.20
100	10" diameter, 16 ga. corrugated, 7.3 lb./L.F.		650	.098		11.85	4.34	2.82	19.01	23
100	12" diameter, 16 ga. corrugated, 8.7 lb./L.F.		600	.107		15.40	4.71	3.05	23.16	27.50
100	14" diameter, 16 ga. corrugated, 10.0 lb./L.F.		550	.116		18.10	5.15	3.33	26.58	31.50
100	16" diameter, 16 ga. corrugated, 11.6 lb./L.F.	↓	500	.128	↓	22	5.65	3.66	31.31	37.50
100	Cast in place friction pile, 50' long, fluted,									

31 63 Bored Piles

31 63 29 – Drilled Concrete Piers and Shafts

31 63 29.13 Uncased Drilled Concrete Piers		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total End Cost
							Labor	Equipment		
0810	tapered steel, 4000 psi concrete, no reinforcing									
0900	12" diameter, 7 ga.	B-19	600	.107	V.L.F.	28.50	4.71	3.05	36.26	45.26
1000	14" diameter, 7 ga.		560	.114		31	5.05	3.27	39.32	48.32
1100	16" diameter, 7 ga.		520	.123		36.50	5.45	3.52	45.47	53.47
1200	18" diameter, 7 ga.	↓	480	.133	↓	43	5.90	3.82	52.72	61.72
1300	End bearing, fluted, constant diameter,									
1320	4000 psi concrete, no reinforcing									
1340	12" diameter, 7 ga.	B-19	600	.107	V.L.F.	30	4.71	3.05	37.76	44.76
1360	14" diameter, 7 ga.		560	.114		37.50	5.05	3.27	45.82	52.82
1380	16" diameter, 7 ga.		520	.123		43.50	5.45	3.52	52.47	60.47
1400	18" diameter, 7 ga.	↓	480	.133	↓	48	5.90	3.82	57.72	66.72

31 63 29.20 Cast In Place Piles, Adds

0010	CAST IN PLACE PILES, ADDS				Lb.	.98			.98	
1500	For reinforcing steel, add									
1700	For ball or pedestal end, add	B-19	11	5.818	C.Y.	144	257	167	568	745
1900	For lengths above 60', concrete, add	"	11	5.818	"	150	257	167	574	759
2000	For steel thin shell, pipe only				Lb.	1.17			1.17	1.17

Estimating Tips

20 00 Operations and Maintenance of Exterior Improvements

Recycling of asphalt pavement is becoming very popular and is an alternative to removal and replacement. It can be a good value engineering proposal if removed pavement can be recycled, either at the project site or at another site that is reasonably close to the project site. Two new sections on repair of flexible and rigid pavement have been added.

20 00 Bases, Ballasts, and Paving

When estimating paving, keep in mind the project schedule. If an asphaltic paving project is in a colder climate and runs through to the spring, consider placing the base course in the autumn and then paving it in the spring, just

prior to completion. This could save considerable costs in spring repair. Keep in mind that prices for asphalt and concrete are generally higher in the cold seasons. New lines have been added for pavement markings including tactile warning systems and new fence lines.

32 90 00 Planting

- The timing of planting and guarantee specifications often dictate the costs for establishing tree and shrub growth and a stand of grass or ground cover. Establish the work performance schedule to coincide with the local planting season. Maintenance and growth guarantees can add from 20%-100% to the total landscaping cost. The cost to replace trees and shrubs can be as high as 5% of the total cost, depending on the planting zone, soil conditions, and time of year.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

32 01 Operation and Maintenance of Exterior Improvements

32 01 13 - Flexible Paving Surface Treatment

32 01 13.61 Slurry Seal (Latex Modified)		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
0010 SLURRY SEAL (LATEX MODIFIED)							Labor	Equipment	
3780	Rubberized asphalt (latex) seal	B-45	5000	.003	S.Y.	2.70	.13	.17	3
32 01 13.64 Sand Seal									
0010 SAND SEAL									
2080	Sand sealing, sharp sand, asphalt emulsion, small area	B-91	10000	.006	S.Y.	1.40	.26	.22	1.88
2120	Roadway or large area	"	18000	.004	"	1.20	.15	.12	1.47
32 01 13.66 Fog Seal									
0010 FOG SEAL									
0012	Sealcoating, 2 coat coal tar pitch emulsion over 10,000 S.Y.	B-45	5000	.003	S.Y.	1	.13	.17	1.30
0030	1000 to 10,000 S.Y.	"	3000	.005		1	.22	.28	1.50
0100	Under 1000 S.Y.	B-1	1050	.023		1	.82		1.82
0300	Petroleum resistant, over 10,000 S.Y.	B-45	5000	.003		1.28	.13	.17	1.58
0320	1000 to 10,000 S.Y.	"	3000	.005		1.28	.22	.28	1.78
0400	Under 1000 S.Y.	B-1	1050	.023		1.28	.82		2.10
0600	Non-skid pavement renewal, over 10,000 S.Y.	B-45	5000	.003		1.40	.13	.17	1.70
0620	1000 to 10,000 S.Y.	"	3000	.005		1.40	.22	.28	1.90
0700	Under 1000 S.Y.	B-1	1050	.023		1.40	.82		2.22
0800	Prepare and clean surface for above	A-2	8545	.003			.10	.02	.12
1000	Hand seal asphalt curbing	B-1	4420	.005	L.F.	.84	.19		1.03
1900	Asphalt surface treatment, single course, small area								
1901	0.30 gal/S.Y. asphalt material, 20#/S.Y. aggregate	B-91	5000	.013	S.Y.	1.92	.53	.43	2.88
1910	Roadway or large area		10000	.006		1.77	.26	.22	2.25
1950	Asphalt surface treatment, dbl. course for small area		3000	.021		3.84	.88	.72	5.44
1960	Roadway or large area		6000	.011		3.46	.44	.36	4.26
1980	Asphalt surface treatment, single course, for shoulders		7500	.009		1.68	.35	.29	2.32

32 06 Schedules for Exterior Improvements

32 06 10 - Schedules for Bases, Ballasts, and Paving

32 06 10.10 Sidewalks, Driveways and Patios

0010 SIDEWALKS, DRIVEWAYS AND PATIOS No base									
0020	Asphaltic concrete, 2" thick	B-37	720	.067	S.Y.	6.55	2.47	.21	9.23
0100	2-1/2" thick	"	660	.073	"	8.35	2.69	.23	11.27
0300	Concrete, 3000 psi, CIP, 6 x 6 - W1.4 x W1.4 mesh,								
0310	broamed finish, no base, 4" thick	B-24	600	.040	S.F.	1.70	1.62		3.32
0350	5" thick		545	.044		2.27	1.78		4.05
0400	6" thick		510	.047		2.64	1.91		4.55
0450	Far bank run gravel base, 4" thick, add	B-18	2500	.010		.53	.34	.02	.89
0520	8" thick, add	"	1600	.015		1.07	.54	.03	1.64
0550	Exposed aggregate finish, add to above, minimum	B-24	1875	.013		.13	.52		.65
0600	Maximum	"	455	.053		.43	2.14		2.57
1000	Crushed stone, 1" thick, white marble	2 Clab	1700	.009		.24	.33		.57
1050	Bluestone	"	1700	.009		.18	.33		.51
1700	Redwood, prefabricated, 4' x 4' sections	2 Carp	316	.051		4.74	2.23		6.97
1750	Redwood planks, 1" thick, on sleepers	"	240	.067		4.74	2.94		7.68
2250	Stone dust, 4" thick	B-62	900	.027	S.Y.	3.66	1.02	.18	4.86

32 06 10.20 Steps

0010 STEPS									
0011	Incl. excav., borrow & concrete base as required								
0100	Brick steps	B-24	35	.686	L.F. Riser	11.70	28		39.70
0200	Railroad ties	2 Clab	25	.640		3.10	22.50		25.60

06 Schedules for Exterior Improvements

10 – Schedules for Bases, Ballasts, and Paving

0.20 Steps	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs			Total Incl O&P
						Labor	Equipment	Total	
Bluestone treads, 12" x 2" or 12" x 1-1/2"	B-24	30	.800	LF Riser	28	32.50		60.50	79.50
Concrete, cast in place, see Section 03 30 53.40									
Precast concrete, see Section 03 41 23.50									
Steel edge strips, incl. stakes, 1/4" x 5"	B-1	390	.062	L.F.	2.50	2.20		4.70	6.15
Edging, landscape timber or railroad ties, 6" x 8"	2 Corp	170	.094	"	3.97	4.15		8.12	10.75

11 Base Courses

23 – Aggregate Base Courses

23.23 Base Course Drainage Layers

BASE COURSE DRAINAGE LAYERS									
For roadways and large areas									
Crushed 3/4" stone base, compacted, 3" deep	B-36C	5200	.008	S.Y.	3.04	.33	.72	4.09	4.63
6" deep		5000	.008		6.10	.34	.75	7.19	8.05
9" deep		4600	.009		9.15	.37	.81	10.33	11.50
12" deep	▼	4200	.010		12.20	.40	.89	13.49	15
Crushed 1-1/2" stone base, compacted to 4" deep	B-36B	6000	.011		3.98	.44	.72	5.14	5.85
6" deep		5400	.012		5.95	.49	.80	7.24	8.15
8" deep		4500	.014		7.95	.58	.97	9.50	10.70
12" deep	▼	3800	.017	▼	11.95	.69	1.14	13.78	15.45
Bank run gravel, spread and compacted									
6" deep	B-32	6000	.005	S.Y.	4.44	.23	.35	5.02	5.60
9" deep	▼	4900	.007		6.65	.29	.42	7.36	8.25
12" deep	▼	4200	.008		8.90	.33	.50	9.73	10.85
Stabilization fabric, polypropylene, 6 oz./S.Y.	B-6	10000	.002	▼	1.14	.09	.03	1.26	1.43
For small and irregular areas, add						50%	50%		
Prepare and roll sub-base, small areas to 2500 S.Y.	B-32A	1500	.016	S.Y.		.68	.83	1.51	1.96
Large areas over 2500 S.Y.	"	3500	.007			.29	.36	.65	.83
For roadways	B-32	4000	.008	▼		.35	.52	.87	1.10

26 – Asphaltic Base Courses

26.19 Bituminous-Stabilized Base Courses

BITUMINOUS-STABILIZED BASE COURSES									
And large paved areas									
Liquid application to gravel base, asphalt emulsion	B-45	6000	.003	Gal.	6.70	.11	.14	6.95	7.65
Prime and seal, cut back asphalt		6000	.003	"	7.90	.11	.14	8.15	9
Macadam penetration crushed stone, 2 gal. per S.Y., 4" thick		6000	.003	S.Y.	13.40	.11	.14	13.65	15.05
6" thick, 3 gal. per S.Y.		4000	.004	▼	20	.16	.21	20.37	22.50
8" thick, 4 gal. per S.Y.	▼	3000	.005	▼	27	.22	.28	27.50	30
For small and irregular areas, add						50%	50%		

32 12 Flexible Paving

32 12 16 - Asphalt Paving

32 12 16.13 Plant-Mix Asphalt Paving		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total
PLANT-MIX ASPHALT PAVING							Labor	Equipment	
0010	And large paved areas with no hauling included								
0020	See Section 31 23 23.20 for hauling costs								
0080	Binder course, 1-1/2" thick	B-25	7725	.011	S.Y.	5.05	.44	.33	5.82
0120	2" thick		6345	.014		6.75	.53	.40	7.68
0130	2-1/2" thick		5620	.016		8.45	.60	.45	9.50
0160	3" thick		4905	.018		10.10	.69	.52	11.31
0170	3-1/2" thick		4520	.019		11.80	.75	.56	13.11
0200	4" thick		4140	.021		13.50	.82	.61	14.93
0300	Wearing course, 1" thick	B-25B	10575	.009		3.34	.35	.26	3.95
0340	1-1/2" thick		7725	.012		5.60	.49	.36	6.45
0380	2" thick		6345	.015		7.55	.59	.44	8.58
0420	2-1/2" thick		5480	.018		9.30	.68	.50	10.48
0460	3" thick		4900	.020		11.10	.77	.56	12.43
0470	3-1/2" thick		4520	.021		13.05	.83	.61	14.49
0480	4" thick		4140	.023		14.90	.91	.67	16.48
0500	Open graded friction course	B-25C	5000	.010		2.70	.38	.44	3.52
0800	Alternate method of figuring paving costs								
0810	Binder course, 1-1/2" thick	B-25	630	.140	Ton	62	5.35	4.03	71.38
0811	2" thick		690	.128		62	4.90	3.68	70.58
0812	3" thick		800	.110		62	4.22	3.17	69.39
0813	4" thick		900	.098		62	3.75	2.82	68.57
0850	Wearing course, 1" thick	B-25B	575	.167		68	6.50	4.81	79.31
0851	1-1/2" thick		630	.152		68	5.95	4.39	78.34
0852	2" thick		690	.139		68	5.45	4.01	77.46
0853	2-1/2" thick		765	.125		68	4.90	3.61	76.51
0854	3" thick		800	.120		68	4.69	3.46	76.15
1000	Pavement replacement over trench, 2" thick	B-37	90	.533	S.Y.	6.95	19.75	1.66	28.36
1050	4" thick		70	.686		13.80	25.50	2.13	41.43
1080	6" thick		55	.873		22	32.50	2.71	57.21

32 12 16.14 Asphaltic Concrete Paving

0011	ASPHALTIC CONCRETE PAVING, parking lots & driveways								
0015	No asphalt hauling included								
0018	Use 6.05 C. Y. per inch per M.S.F. for hauling								
0020	6" stone base, 2" binder course, 1" topping	B-25C	9000	.005	S.F.	1.70	.21	.25	2.16
0025	2" binder course, 2" topping		9000	.005		2.11	.21	.25	2.57
0030	3" binder course, 2" topping		9000	.005		2.49	.21	.25	2.95
0035	4" binder course, 2" topping		9000	.005		2.86	.21	.25	3.32
0040	1.5" binder course, 1" topping		9000	.005		1.51	.21	.25	1.97
0042	3" binder course, 1" topping		9000	.005		2.07	.21	.25	2.53
0045	3" binder course, 3" topping		9000	.005		2.90	.21	.25	3.36
0050	4" binder course, 3" topping		9000	.005		3.27	.21	.25	3.73
0055	4" binder course, 4" topping		9000	.005		3.68	.21	.25	4.14
0300	Binder course, 1-1/2" thick		35000	.001		.56	.05	.06	.67
0400	2" thick		25000	.002		.73	.08	.09	.90
0500	3" thick		15000	.003		1.13	.13	.15	1.41
0600	4" thick		10800	.004		1.48	.17	.21	1.86
0800	Sand finish course, 3/4" thick		41000	.001		.32	.05	.05	.42
0900	1" thick		34000	.001		.39	.06	.07	.52
1000	Fill pot holes, hot mix, 2" thick	B-16	4200	.008		.84	.27	.14	1.25
1100	4" thick		3500	.009		1.23	.33	.17	1.73
1120	6" thick		3100	.010		1.65	.37	.19	2.21

12 Flexible Paving

12.16 – Asphalt Paving

12.16.14 Asphaltic Concrete Paving	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
						Labor	Equipment	Total	
Cold patch, 2" thick	B-51	3000	.016	S.F.	.85	.57	.07	1.49	1.89
4" thick		2700	.018		1.62	.63	.08	2.33	2.83
6" thick		1900	.025		2.52	.89	.11	3.52	4.26

13 Rigid Paving

13.13 – Concrete Paving

13.23 Concrete Paving Surface Treatment

CONCRETE PAVING SURFACE TREATMENT									
Including joints, finishing and curing									
Fixed form, 12' pass, unreinforced, 6" thick	B-26	3000	.029	S.Y.	20.50	1.15	1.05	22.70	25.50
8" thick		2750	.032		28	1.26	1.14	30.40	33.50
8" thick, small area		1375	.064		28	2.52	2.28	32.80	37
9" thick		2500	.035		32	1.38	1.26	34.64	38.50
10" thick		2100	.042		35	1.65	1.50	38.15	42.50
10" thick, small area		1050	.084		35	3.29	2.99	41.28	47
12" thick		1800	.049		40.50	1.92	1.75	44.17	49.50
Conc pavement, w/jt,fnsh&curing,fix form,24' pass,unreinforced,6" T		6000	.015		19.50	.58	.52	20.60	23
8" thick		5500	.016		26.50	.63	.57	27.70	31
9" thick		5000	.018		30.50	.69	.63	31.82	35.50
10" thick		4200	.021		33.50	.82	.75	35.07	39
12" thick		3600	.024		39	.96	.87	40.83	45.50
15" thick		3000	.029		51	1.15	1.05	53.20	59
Fixed form 12' pass 15" thick		1500	.059		51	2.31	2.09	55.40	62.50
For small irregular areas, add									
Welded wire fabric, sheets for rigid paving 2.33 lb./S.Y.	2 Radm	389	.041	S.Y.	1.24	2.02		3.26	4.59
Reinforcing steel for rigid paving 12 lb./S.Y.		666	.024		6.20	1.18		7.38	8.70
Reinforcing steel for rigid paving 18 lb./S.Y.		444	.036		9.25	1.77		11.02	13.05
Slip form, 12' pass, unreinforced, 6" thick	B-26A	5600	.016		19.80	.62	.59	21.01	23.50
8" thick		5300	.017		27	.65	.62	28.27	31
9" thick		4820	.018		31	.72	.68	32.40	36
10" thick		4050	.022		34	.85	.81	35.66	39.50
12" thick		3470	.025		39.50	1	.95	41.45	46
15" thick		2890	.030		50	1.20	1.14	52.34	57.50
Slip form, 24' pass, unreinforced, 6" thick		11200	.008		19.45	.31	.29	20.05	22.50
8" thick		10600	.008		26	.33	.31	26.64	30
9" thick		9640	.009		30	.36	.34	30.70	34
10" thick		8100	.011		33	.43	.41	33.84	37.50
12" thick		6940	.013		38.50	.50	.47	39.47	44
15" thick		5780	.015		48.50	.60	.57	49.67	55
Finishing, broom finish small areas	2 Cefi	120	.133			5.65		5.65	8.30
Curing, with sprayed membrane by hand	2 Clab	1500	.011		.67	.37		1.04	1.32
For integral coloring, see Section 03 05 13.20									

32 14 Unit Paving

32 14 13 - Precast Concrete Unit Paving

32 14 13.13 Interlocking Precast Concrete Unit Paving	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total
0010 INTERLOCKING PRECAST CONCRETE UNIT PAVING								
0020 "V" blocks for retaining soil	D-1	205	.078	S.F.	9.50	3.11		12.61

32 14 13.16 Precast Concrete Unit Paving Slabs

0010 PRECAST CONCRETE UNIT PAVING SLABS								
0710 Precast concrete patio blocks, 2-3/8" thick, colors, 8" x 16"	D-1	265	.060	S.F.	2	2.41		4.41
0750 Exposed local aggregate, natural	2 Bric	250	.064		7.10	2.82		9.92
0800 Colors		250	.064		7.10	2.82		9.92
0850 Exposed granite or limestone aggregate		250	.064		7.20	2.82		10.02
0900 Exposed white humblestone aggregate	▼	250	.064	▼	6.15	2.82		8.97

32 14 13.18 Precast Concrete Plantable Pavers

0010 PRECAST CONCRETE PLANTABLE PAVERS (50% gross)								
0015 Subgrade preparation and gross planting not included								
0100 Precast concrete plantable pavers with topsoil, 24" x 16"	B-63	800	.050	S.F.	4.39	1.85	.20	6.44
0200 Less than 600 Square Feet or irregular area	"	500	.080	"	4.39	2.96	.32	7.67
0300 3/4" crushed stone base for plantable pavers, 6 inch depth	B-62	1000	.024	S.Y.	6.10	.92	.16	7.18
0400 8 inch depth		900	.027		8.15	1.02	.18	9.35
0500 10 inch depth		800	.030		10.15	1.15	.20	11.50
0600 12 inch depth	▼	700	.034	▼	12.20	1.31	.23	13.74
0700 Hydro seeding plantable pavers	B-81A	20	.800	M.S.F.	19.60	28	19.25	66.85
0800 Apply fertilizer and seed to plantable pavers	1 Club	8	1	"	34.50	35		69.50

32 14 16 - Brick Unit Paving

32 14 16.10 Brick Paving

0010 BRICK PAVING								
0012 4" x 8" x 1-1/2", without joints (4.5 brick/S.F.)	D-1	110	.145	S.F.	2.86	5.80		8.66
0100 Grouted, 3/8" joint (3.9 brick/S.F.)		90	.178		3.38	7.10		10.48
0200 4" x 8" x 2-1/4", without joints (4.5 bricks/S.F.)		110	.145		3.74	5.80		9.54
0300 Grouted, 3/8" joint (3.9 brick/S.F.)	▼	90	.178		3.45	7.10		10.55
0500 Bedding, asphalt, 3/4" thick	B-25	5130	.017		.62	.66	.49	1.77
0540 Course washed sand bed, 1" thick	B-18	5000	.005		.36	.17	.01	.54
0580 Mortar, 1" thick	D-1	300	.053		.66	2.13		2.79
0620 2" thick		200	.080		1.31	3.19		4.50
1500 Brick on 1" thick sand bed laid flat, 4.5 per S.F.		100	.160		3.03	6.40		9.43
2000 Brick pavers, laid on edge, 7.2 per S.F.		70	.229		2.80	9.10		11.90
2500 For 4" thick concrete bed and joints, add	▼	595	.027		1.12	1.07		2.19
2800 For steam cleaning, add	A-1H	950	.008	▼	.08	.30	.07	.45

32 14 23 - Asphalt Unit Paving

32 14 23.10 Asphalt Blocks

0010 ASPHALT BLOCKS								
0020 Rectangular, 6" x 12" x 1-1/4", w/bed & neopr. adhesive	D-1	135	.119	S.F.	9.05	4.72		13.77
0100 3" thick		130	.123		12.65	4.90		17.55
0300 Hexagonal tile, 8" wide, 1-1/4" thick		135	.119		9.05	4.72		13.77
0400 2" thick		130	.123		12.65	4.90		17.55
0500 Square, 8" x 8", 1-1/4" thick		135	.119		9.05	4.72		13.77
0600 2" thick	▼	130	.123		12.65	4.90		17.55
0900 For exposed aggregate (ground finish) add					.63			.63
0910 For colors, add					.48			.48

32 14 40 - Stone Paving

32 14 40.10 Stone Pavers

0010 STONE PAVERS								
1100 Flogging, bluestone, irregular, 1" thick,	D-1	81	.198	S.F.	5.75	7.85		13.60

14 Unit Paving

4 40 – Stone Paving

40.10 Stone Pavers	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Incl O&P
Snapped random rectangular, 1" thick	D-1	92	.174	S.F.	8.70	6.95		15.65	20
1-1/2" thick		85	.188		10.45	7.50		17.95	23
2" thick		83	.193		12.20	7.70		19.90	25
Slate, natural cleft, irregular, 3/4" thick		92	.174		9.60	6.95		16.55	21
Random rectangular, gauged, 1/2" thick		105	.152		21	6.05		27.05	32
Random rectangular, butt joint, gauged, 1/4" thick	▼	150	.107	▼	22.50	4.25		26.75	31
For interior setting, add								25%	25%
Granite blocks, 3-1/2" x 3-1/2" x 3-1/2"	D-1	92	.174	S.F.	10	6.95		16.95	21.50
4" to 12" long, 3" to 5" wide, 3" to 5" thick		98	.163		8.35	6.50		14.85	19
6" to 15" long, 3" to 6" wide, 3" to 5" thick	▼	105	.152	▼	4.45	6.05		10.50	14.05

16 Curbs, Gutters, Sidewalks, and Driveways

6 13 – Curbs and Gutters

13.13 Cast-in-Place Concrete Curbs and Gutters

CAST-IN-PLACE CONCRETE CURBS AND GUTTERS									
Forms only, no concrete									
Concrete, wood forms, 6" x 18", straight	C-2	500	.096	L.F.	2.15	4.12		6.27	8.70
6" x 18", radius	"	200	.240	"	2.25	10.30		12.55	18.30
Forms and concrete complete									
Concrete, wood forms, 6" x 18", straight & concrete	C-2A	500	.096	L.F.	5	4.09		9.09	11.75
6" x 18", radius		200	.240		5.10	10.25		15.35	21.50
Steel forms, 6" x 18", straight		700	.069		4.42	2.92		7.34	9.35
6" x 18", radius	▼	400	.120		6.60	5.10		11.70	15.05
Machine formed, 6" x 18", straight	B-69A	2000	.024		6.15	.93	.38	7.46	8.60
6" x 18", radius	"	900	.053	▼	6.25	2.06	.85	9.16	10.95
Curb and gutter, straight									
with 6" high curb and 6" thick gutter, wood forms									
24" wide, .055 C.Y. per L.F.	C-2A	375	.128	L.F.	13.35	5.45		18.80	23
30" wide, .066 C.Y. per L.F.		340	.141		14.85	6		20.85	25.50
Steel forms, 24" wide, straight		700	.069		11.05	2.92		13.97	16.60
Radius		300	.160		11.05	6.80		17.85	22.50
30" wide, straight		700	.069		13.05	2.92		15.97	18.80
Radius	▼	300	.160		13.05	6.80		19.85	25
Machine formed, 24" wide, straight	B-69A	2000	.024		5.70	.93	.38	7.01	8.15
Radius		900	.053		5.70	2.06	.85	8.61	10.35
30" wide, straight		2000	.024		6.65	.93	.38	7.96	9.15
Radius	▼	900	.053	▼	6.65	2.06	.85	9.56	11.35

13.23 Precast Concrete Curbs and Gutters

PRECAST CONCRETE CURBS AND GUTTERS									
Precast, 6" x 18", straight	B-29	700	.080	L.F.	8.75	3.05	1.21	13.01	15.65
6" x 18", radius	"	325	.172	"	19.50	6.55	2.60	28.65	34.50

13.33 Asphalt Curbs

ASPHALT CURBS									
Curbs, asphaltic, machine formed, 8" wide, 6" high, 40 L.F./ton	B-27	1000	.032	L.F.	1.65	1.14	.28	3.07	3.88
8" wide, 8" high, 30 L.F. per ton		900	.036		2.20	1.27	.31	3.78	4.71
Asphaltic berm, 12" W, 3"-6" H, 35 L.F./ton, before pavement	▼	700	.046		.04	1.63	.40	2.07	2.98
12" W, 1-1/2" to 4" H, 60 L.F. per ton, laid with pavement	B-2	1050	.038	▼	.02	1.35		1.37	2.10

13.43 Stone Curbs

STONE CURBS									
Granite, split face, straight, 5" x 16"	D-13	500	.096	L.F.	12.75	4.05	.90	17.70	21

32 16 Curbs, Gutters, Sidewalks, and Driveways

32 16 13 – Curbs and Gutters

32 16 13.43 Stone Curbs		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. 32 16 13
							Labor	Equipment		
1100	6" x 18"	D-13	450	.107	L.F.	16.75	4.50	1	22.25	
1300	Radius curbing, 6" x 18", over 10' radius	B-29	260	.215	▼	20.50	8.20	3.25	31.95	
1400	Corners, 2' radius		80	.700	Eq.	69	26.50	10.55	106.05	
1600	Edging, 4-1/2" x 12", straight		300	.187	L.F.	6.40	7.10	2.81	16.31	
1800	Curb inlets, (guttermouth) straight	▼	41	1.366	Eq.	153	52	20.50	225.50	
2000	Indian granite (belgian block)									
2100	Jumbo, 10-1/2" x 7-1/2" x 4", grey	D-1	150	.107	L.F.	6.50	4.25		10.75	
2150	Pink		150	.107		6.70	4.25		10.95	
2200	Regular, 9" x 4-1/2" x 4-1/2", grey		160	.100		6.60	3.99		10.59	
2250	Pink		160	.100		5.95	3.99		9.94	
2300	Cubes, 4" x 4" x 4", grey		175	.091		3.83	3.64		7.47	
2350	Pink		175	.091		3.23	3.64		6.87	
2400	6" x 6" x 6", pink	▼	155	.103	▼	11.20	4.11		15.31	
2500	Alternate pricing method for indian granite									
2550	Jumbo, 10-1/2" x 7-1/2" x 4" (30 lb), grey				Ton	370			370	
2600	Pink					390			390	
2650	Regular, 9" x 4-1/2" x 4-1/2" (20 lb), grey					465			465	
2700	Pink					415			415	
2750	Cubes, 4" x 4" x 4" (5 lb), grey					465			465	
2800	Pink					415			415	
2850	6" x 6" x 6" (25 lb), pink					435			435	
2900	For pallets, odd				▼	20			20	

32 17 Paving Specialties

32 17 13 – Parking Bumpers

32 17 13.13 Metal Parking Bumpers

0010 METAL PARKING BUMPERS										
0015	Bumper rails for garages, 12 Ga. rail, 6" wide, with steel									
0020	posts 12'-6" O.C., minimum	E-4	190	.168	L.F.	16.15	8.40	.64	25.19	
0030	Average		165	.194		20	9.65	.74	30.39	
0100	Maximum		140	.229		24	11.40	.87	36.27	
0300	12" channel rail, minimum		160	.200		20	9.95	.76	30.71	
0400	Maximum	▼	120	.267	▼	30.50	13.30	1.01	44.81	
1300	Pipe ballards, conc filled/point, 8' L x 4' D hole, 6" diam.	B-6	20	1.200	Eq.	705	46	16.70	767.70	
1400	8" diam.		15	1.600		1,025	61.50	22.50	1,109	
1500	12" diam.		12	2		1,150	76.50	28	1,254.50	
1592	Bollards, steel, 3' H, retractable, incl hydraulic controls, min		4	6		44,000	230	83.50	44,313.50	
1594	Mox	▼	2	12		46,000	460	167	46,627	
2030	Folding with individual padlocks	B-2	50	.800	▼	560	28.50		588.50	
8000	Parking lot control, see Section 11 12 13.10									
8900	Security bollards, SS, lighted, hyd, incl. controls, group of 3	L-7	.06	509	Eq.	47,000	21,700		68,700	
8910	Group of 5	"	.04	682	"	63,000	29,100		92,100	

32 17 13.16 Plastic Parking Bumpers

0010 PLASTIC PARKING BUMPERS										
1200	Thermoplastic, 6" x 10" x 6'-0"	B-2	120	.333	Eq.	150	11.85		161.85	

32 17 13.19 Precast Concrete Parking Bumpers

0010 PRECAST CONCRETE PARKING BUMPERS										
1000	Wheel stops, precast concrete incl. dowels, 6" x 10" x 6'-0"	B-2	120	.333	Eq.	59.50	11.85		71.35	
1100	8" x 13" x 6'-0"	"	120	.333	"	87.50	11.85		99.35	

17 Paving Specialties

7 13 - Parking Bumpers

13.26 Wood Parking Bumpers	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
WOOD PARKING BUMPERS									
Parking barriers, timber w/saddles, treated type									
4" x 4" for cars	B-2	520	.077	L.F.	2.26	2.73		4.99	6.70
6" x 6" for trucks		520	.077	"	4.61	2.73		7.34	9.25
Flexible fixed stanchion, 2' high, 3" diameter	▼	100	.400	Ea.	37	14.20		51.20	62.50

7 23 - Pavement Markings

23.13 Painted Pavement Markings

PAINTED PAVEMENT MARKINGS									
Acrylic waterborne, white or yellow, 4" wide, less than 3000 L.F.	B-78	20000	.002	L.F.	.12	.08	.03	.23	.29
6" wide, less than 3000 L.F.		11000	.004		.18	.15	.05	.38	.49
8" wide, less than 3000 L.F.		10000	.005		.24	.17	.05	.46	.59
12" wide, less than 3000 L.F.		4000	.012	▼	.36	.42	.14	.92	1.20
Arrows or gore lines		2300	.021	S.F.	.15	.74	.23	1.12	1.56
Temporary paint, white or yellow, less than 3000 L.F.	▼	15000	.003	L.F.	.05	.11	.04	.20	.27
Removal	1 Clab	300	.027			.94		.94	1.44
Temporary tape	2 Clab	1500	.011		.42	.37		.79	1.04
Thermoplastic, white or yellow, 4" wide, less than 6000 L.F.	B-79	15000	.003		.28	.09	.09	.46	.55
6" wide, less than 6000 L.F.		14000	.003		.42	.10	.09	.61	.72
8" wide, less than 6000 L.F.		12000	.003		.56	.12	.11	.79	.92
12" wide, less than 6000 L.F.		6000	.007	▼	.83	.24	.22	1.29	1.51
Arrows		660	.061	S.F.	.56	2.14	1.97	4.67	6.05
Gore lines		2500	.016		.56	.57	.52	1.65	2.06
Letters	▼	660	.061	▼	.56	2.14	1.97	4.67	6.05
Airport painted markings									
Traffic safety flashing truck for airport painting	A-2B	1	8	Day		275	211	486	645
Painting, white or yellow, taxiway markings	B-78	4000	.012	S.F.	.24	.42	.14	.80	1.06
with 12 lb. beads per 100 S.F.		4000	.012		.52	.42	.14	1.08	1.37
Runway markings		3500	.014		.24	.48	.15	.87	1.17
with 12 lb. beads per 100 S.F.		3500	.014		.52	.48	.15	1.15	1.48
Pavement location or direction signs		2500	.019		.24	.68	.22	1.14	1.54
with 12 lb. beads per 100 S.F.		2500	.019	▼	.52	.68	.22	1.42	1.85
Mobilization airport pavement painting	▼	4	12	Ea.		425	135	560	800
Paint markings or pavement signs removal daytime	B-78B	400	.045	S.F.		1.63	.86	2.49	3.44
Removal nighttime	▼	335	.054	"		1.94	1.03	2.97	4.11
Mobilization pavement paint removal	▼	4	4.500	Ea.		163	86	249	345

23.14 Pavement Parking Markings

PAVEMENT PARKING MARKINGS									
Layout of pavement marking	A-2	25000	.001	L.F.		.03	.01	.04	.06
Lines on pvmr, parking stall, paint, white, 4" wide	B-78B	400	.045	Stall	4.40	1.63	.86	6.89	8.30
Parking stall, small quantities	2 Pard	80	.200		8.80	7.65		16.45	21
Lines on pvmr, parking stall, thermoplastic, white, 4" wide	B-79	300	.133	▼	12	4.71	4.33	21.04	25
Street letters and numbers	B-78B	1600	.011	S.F.	.64	.41	.21	1.26	1.56

32 18 Athletic and Recreational Surfacing

32 18 13 – Synthetic Grass Surfacing

		Daily Crew	Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total
							Labor	Equipment		Unit
32 18 13.10	Artificial Grass Surfacing									
0010	ARTIFICIAL GRASS SURFACING									
0015	Not including asphalt base or drainage,									
0020	but including cushion pad, over 50,000 S.F.									
0200	1/2" pile and 5/16" cushion pad, standard	C-17	3200	.025	S.F.	10	1.15		11.15	
0300	Deluxe		2560	.031		14.80	1.43		16.23	
0500	1/2" pile and 5/8" cushion pad, standard		2844	.028		14.45	1.29		15.74	
0600	Deluxe	▼	2327	.034	▼	15.90	1.57		17.47	
0800	For asphaltic concrete base, 2-1/2" thick,									
0900	with 6" crushed stone sub-base, add	B-25	12000	.007	S.F.	1.60	.28	.21	2.09	

32 18 23 – Athletic Surfacing

32 18 23.33	Running Track Surfacing									
0010	RUNNING TRACK SURFACING									
0020	Running track, asphalt, incl base, 3" thick	B-37	300	.160	S.Y.	23	5.95	.50	29.45	
0100	Surface, latex rubber system, 3/8" thick, black	B-20	125	.192		10.30	7.55		17.85	
0150	Colors		125	.192		18.30	7.55		25.85	
0300	Urethane rubber system, 3/8" thick, black		120	.200		27.50	7.85		35.35	
0400	Color coating	▼	115	.209	▼	33.50	8.20		41.70	

32 18 25.53 Tennis Court Surfacing

32 18 25.53	Tennis Court Surfacing									
0010	TENNIS COURT SURFACING									
0020	Tennis court, asphalt, incl. base, 2-1/2" thick, one court	B-37	450	.107	S.Y.	35	3.95	.33	39.28	
0200	Two courts		675	.071		14.35	2.63	.22	17.20	
0300	Clay courts		360	.133		35.50	4.94	.41	40.85	
0400	Pulverized natural greenstone with 4" base, fast dry		250	.192		38	7.10	.60	45.70	
0800	Rubber-acrylic base resilient pavement	▼	600	.080		53.50	2.96	.25	56.71	
1000	Colored sealer, acrylic emulsion, 3 coats	2 Clab	800	.020		5.80	.70		6.50	
1100	3 coat, 2 colors	"	900	.018		8.10	.62		8.72	
1200	For preparing old courts, add	1 Clab	825	.010	▼		.34		.34	
1400	Pasts for nets, 3-1/2" diameter with eye bolts	B-1	3.40	7.059	Pr.	228	252		480	
1500	With pulley & reel		3.40	7.059	"	325	252		577	
1700	Net, 42' long, nylon thread with binder		50	.480	Eq.	300	17.15		317.15	
1800	All metal	▼	6.50	3.692	"	530	132		662	
2000	Paint markings on asphalt, 2 coats	1 Pard	1.78	4.494	Court	144	172		316	
2200	Complete court with fence, etc., asphaltic conc., minimum	B-37	.20	240		27,000	8,900	745	36,645	44.10
2300	Maximum		.16	300		54,000	11,100	935	66,035	77.50
2800	Clay courts, minimum		.20	240		26,000	8,900	745	35,645	43.00
2900	Maximum	▼	.16	300	▼	42,000	11,100	935	54,035	64.00

32 31 Fences and Gates

32 31 13 – Chain Link Fences and Gates

32 31 13.20	Fence, Chain Link Industrial									
0010	FENCE, CHAIN LINK INDUSTRIAL									
0011	Schedule 40, including concrete									
0020	3 strands barb wire, 2" post @ 10' O.C., set in concrete, 6' H									
0200	9 ga. wire, galv. steel, in concrete	B-80C	240	.100	L.F.	18.50	3.49	.91	22.90	
0248	Fence, add for vinyl coated fabric				S.F.	.68			.68	
0300	Aluminized steel	B-80C	240	.100	L.F.	18.90	3.49	.91	23.30	
0500	6 ga. wire, galv. steel		240	.100		20	3.49	.91	24.40	
0600	Aluminized steel		240	.100		23	3.49	.91	27.40	
0800	6 ga. wire, 6' high but omit barbed wire, galv. steel		250	.096		18.55	3.35	.87	22.77	
0900	Aluminized steel, in concrete	▼	250	.096	▼	22.50	3.35	.87	26.72	

31 Fences and Gates

13 – Chain Link Fences and Gates

13.20 Fence, Chain Link Industrial	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total Incl O&P
						Labor	Equipment	Total	
8' H, 6 go. wire, 2-1/2" line post, galv. steel, in concrete	B-80C	180	.133	L.F.	29.50	4.65	1.21	35.36	41
Aluminized steel, in concrete		180	.133	▼	36	4.65	1.21	41.86	48
Add for corner posts, 3" diam., galv. steel, in concrete		40	.600	Ea.	86	21	5.45	112.45	133
Aluminized steel, in concrete		40	.600		99	21	5.45	125.45	147
Add for brocs., galv. steel		80	.300		30	10.45	2.73	43.18	52
Aluminized steel		80	.300		39	10.45	2.73	52.18	62
Gate for 6' high fence, 1-5/8" frame, 3' wide, galv. steel		10	2.400		188	83.50	22	293.50	360
Aluminized steel, in concrete	▼	10	2.400	▼	188	83.50	22	293.50	360
5'-0" high fence, 9 go., no barbed wire, 2" line post, in concrete									
10' O.C., 1-5/8" top rail, in concrete	B-80C	300	.080	L.F.	18.20	2.79	.73	21.72	25
Galvanized steel, in concrete		300	.080	"	18.90	2.79	.73	22.42	26
Aluminized steel, in concrete		10	2.400	Eo.	82.50	83.50	22	188	243
Gate, 4' wide, 5' high, 2" frame, galv. steel, in concrete		10	2.400	"	96.50	83.50	22	202	258
Aluminized steel, in concrete									
Overhead slide gate, chain link, 6' high, to 18' wide, in concrete		38	.632	L.F.	92.50	22	5.75	120.25	142
Contilever type, in concrete	B-80	48	.667		65.50	25	13.90	104.40	126
8' high, in concrete		24	1.333		147	50.50	28	225.50	270
10' high, in concrete	▼	18	1.778	▼	180	67.50	37	284.50	340
Double swing gates, incl. posts & hardware, in concrete									
5' high, 12' opening, in concrete	B-80C	3.40	7.059	Opng.	253	246	64.50	563.50	725
20' opening, in concrete		2.80	8.571		292	299	78	669	860
6' high, 12' opening, in concrete		3.20	7.500		233	261	68.50	562.50	730
20' opening, in concrete	▼	2.60	9.231		270	320	84	674	885
8' high, 12' opening, in concrete	B-80	2.13	15.002		270	570	315	1,155	1,500
20' opening, in concrete		1.45	22.069		320	835	460	1,615	2,125
10' high, 12' opening, in concrete		1.31	24.427		2,000	925	510	3,435	4,150
20' opening, in concrete	▼	1.03	31.068		2,175	1,175	650	4,000	4,900
12' high, 12' opening, in concrete		1.05	30.476		1,425	1,150	635	3,210	4,000
20' opening, in concrete	▼	.85	37.647	▼	2,025	1,425	785	4,235	5,275
For aluminized steel odd					20%				
Fence, for small jobs 100 L.F. or less fence w/or no gate, odd				S.F.	20%			20%	

13.25 Fence, Chain Link Residential

FENCE, CHAIN LINK RESIDENTIAL									
Schedule 20, 11 gauge wire, 1-5/8" post									
10' O.C., 1-3/8" top rail, 2" corner post, galv. stl. 3' high	B-80C	500	.048	L.F.	2.13	1.67	.44	4.24	5.40
4' high		400	.060		4.86	2.09	.55	7.50	9.15
6' high		200	.120	▼	6.35	4.18	1.09	11.62	14.55
Add for gate 3' wide, 1-3/8" frame, 3' high		12	2	Eo.	69	69.50	18.20	156.70	203
4' high		10	2.400		74	83.50	22	179.50	234
6' high		10	2.400		105	83.50	22	210.50	268
Add for gate 4' wide, 1-3/8" frame, 3' high		9	2.667		74	93	24.50	191.50	250
4' high		9	2.667		78	93	24.50	195.50	255
6' high		8	3	▼	113	105	27.50	245.50	315
Aluminized steel, 11 go. wire, 3' high		500	.048	L.F.	5.70	1.67	.44	7.81	9.35
4' high		400	.060		7.30	2.09	.55	9.94	11.85
6' high		200	.120	▼	10.55	4.18	1.09	15.82	19.20
Add for gate 3' wide, 1-3/8" frame, 3' high		12	2	Eo.	83	69.50	18.20	170.70	219
4' high		10	2.400		99.50	83.50	22	205	262
6' high		10	2.400		124	83.50	22	229.50	288
Add for gate 4' wide, 1-3/8" frame, 3' high		10	2.400		97	83.50	22	202.50	259
4' high		9	2.667		116	93	24.50	233.50	297
6' high		8	3	▼	137	105	27.50	269.50	340

32 31 Fences and Gates

32 31 13 – Chain Link Fences and Gates

32 31 13.25 Fence, Chain Link Residential		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	
							Labor	Equipment		
0620	Vinyl covered, 9 ga. wire, 3' high	B-80C	500	.048	L.F.	4.95	1.67	.44	7.06	
0640	4' high		400	.060		5.90	2.09	.55	8.54	
0660	6' high		200	.120	▼	9.30	4.18	1.09	14.57	
0720	Add for gate 3' wide, 1-3/8" frame, 3' high		12	2	Eq.	45.50	69.50	18.20	133.20	
0740	4' high		10	2.400		51.50	83.50	22	157	
0760	6' high		10	2.400		115	83.50	22	220.50	
0780	Add for gate 4' wide, 1-3/8" frame, 3' high		10	2.400		74	83.50	22	179.50	
0800	4' high		9	2.667		84	93	24.50	201.50	
0820	6' high	▼	8	3	▼	121	105	27.50	253.50	
7076	Fence, for small jobs 100 L.F. fence or less w/or w/o gate, add				S.F.	20%			20%	

32 31 13.26 Tennis Court Fences and Gates

0010 TENNIS COURT FENCES AND GATES										
0860	Tennis courts, 11 ga. wire, 2-1/2" post set									
0870	in concrete, 10' O.C., 1-5/8" top rail									
0900	10' high	B-80	190	.168	L.F.	16.60	6.35	3.51	26.46	
0920	12' high		170	.188	"	18.60	7.10	3.93	29.63	
1000	Add for gate 4' wide, 1-5/8" frame 7' high		10	3.200	Eq.	183	121	67	371	
1040	Aluminized steel, 11 ga. wire 10' high		190	.168	L.F.	21.50	6.35	3.51	31.36	
1100	12' high		170	.188	"	21.50	7.10	3.93	32.53	
1140	Add for gate 4' wide, 1-5/8" frame, 7' high		10	3.200	Eq.	213	121	67	401	
1250	Vinyl covered, 9 ga. wire, 10' high		190	.168	L.F.	19.60	6.35	3.51	29.46	
1300	12' high	▼	170	.188	"	25	7.10	3.93	36.03	
1310	Fence, CL, tennis ct, transom gate, single, galv, 4' x 7' x 3'	B-80A	8.72	2.752	Eq.	180	96.50	30.50	307	
1400	Add for gate 4' wide, 1-5/8" frame, 7' high	B-80	10	3.200	"	288	121	67	476	

32 31 13.33 Chain Link Backstops

0010 CHAIN LINK BACKSTOPS										
0015	Backstops, baseball, prefabricated, 30' wide, 12' high & 1 overhang	B-1	1	24	Eq.	4,650	860		5,510	
0100	40' wide, 12' high & 2 overhangs	"	.75	32		6,450	1,150		7,600	
0300	Basketball, steel, single goal	B-13	3.04	18.421		1,450	700	229	2,379	
0400	Double goal	"	1.92	29.167	▼	2,125	1,100	365	3,590	
0600	Tennis, wire mesh with pair of ends	B-1	2.48	9.677	Set	2,500	345		2,845	
0700	Enclosed court	"	1.30	18.462	Eq.	9,750	660		10,410	

32 31 13.53 High-Security Chain Link Fences, Gates and Systems

0010 HIGH-SECURITY CHAIN LINK FENCES, GATES AND SYSTEMS										
0100	Fence, chain link, security, 7' H, standard FE-7, incl excavation & posts	B-80C	480	.050	L.F.	41	1.74	.46	43.20	
0200	Fence, barbed wire, security, 7' high, with 3 wire barbed wire arm	"	400	.060	"	6.20	2.09	.55	8.84	
0300	Complete systems, including material and installation									
0310	Taunt wire fence detection system				M.L.F.				24,600	27.8
0410	Microwave fence detection system								40,500	46.5
0510	Passive magnetic fence detection system								19,100	21.8
0610	Infrared fence detection system								12,700	14.0
0710	Strain relief fence detection system								24,600	27.8
0810	Electro-shock fence detection system								35,200	38.7
0910	Photo-electric fence detection system								16,000	17.6

32 31 19 – Decorative Metal Fences and Gates

32 31 19.10 Decorative Fence

0010 DECORATIVE FENCE										
5300	Tubular picket, steel, 6' sections, 1-9/16" posts, 4' high	B-80C	300	.080	L.F.	29	2.79	.73	32.52	
5400	2" posts, 5' high		240	.100		44	3.49	.91	48.40	
5600	2" posts, 6' high		200	.120		50.50	4.18	1.09	55.77	
5700	Staggered picket 1-9/16" posts, 4' high	▼	300	.080	▼	29	2.79	.73	32.52	

31 Fences and Gates

19 – Decorative Metal Fences and Gates

19.10 Decorative Fence	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Base Costs		Total	Total Incl O&P
						Labor	Equipment		
2" posts, 5' high	B-80C	240	.100	L.F.	44	3.49	.91	48.40	54.50
2" posts, 6' high	▼	200	.120	▼	50.50	4.18	1.09	55.77	63.50
Gates, 4' high, 3' wide	B-1	10	2.400	Ea.	250	86		336	405
5' high, 3' wide		10	2.400		264	86		350	420
6' high, 3' wide		10	2.400		315	86		401	480
4' wide	▼	10	2.400	▼	345	86		431	510

26 – Wire Fences and Gates

26.10 Fences, Misc. Metal

FENCES, MISC. METAL									
Chicken wire, posts @ 4', 1" mesh, 4' high	B-80C	410	.059	L.F.	4.30	2.04	.53	6.87	8.45
2" mesh, 6' high		350	.069		2.32	2.39	.62	5.33	6.90
Galv. steel, 12 ga., 2" x 4" mesh, posts 5' O.C., 3' high		300	.080		2.59	2.79	.73	6.11	7.90
5' high		300	.080		3.96	2.79	.73	7.48	9.45
14 ga., 1" x 2" mesh, 3' high		300	.080		2.93	2.79	.73	6.45	8.30
5' high	▼	300	.080	▼	4.60	2.79	.73	8.12	10.10
Kennel fencing, 1-1/2" mesh, 6' long, 3'-6" wide, 6'-2" high	2 Clab	4	4	Ea.	490	140		630	750
12' long		4	4		635	140		775	915
Top covers, 1-1/2" mesh, 6' long		15	1.067		163	37.50		200.50	237
12' long	▼	12	1.333	▼	237	47		284	335
For kennel doors, see Section 08 31 13.40									
Security fence, prison grade, set in concrete, 12' high	B-80	25	1.280	L.F.	54	48.50	26.50	129	163
16' high	"	20	1.600	"	73.50	60.50	33.50	167.50	210

26.20 Wire Fencing, General

WIRE FENCING, GENERAL									
Barbed wire, galvanized, domestic steel, hi-tensile 15-1/2 ga.				M.L.F.	139			139	153
Standard, 12-3/4 ga.					160			160	176
Barbless wire, 2-strand galvanized, 12-1/2 ga.				▼	160			160	176
Helical razor ribbon, stainless steel, 18" dia x 18" spacing				C.L.F.	440			440	485
Hardware cloth galv., 1/4" mesh, 23 ga., 2' wide				C.S.F.	89.50			89.50	98.50
3' wide					89.50			89.50	98.50
1/2" mesh, 19 ga., 2' wide					89.50			89.50	98.50
4' wide					67			67	73.50
Chain link fabric, steel, 2" mesh, 6 ga, galvanized					239			239	263
9 ga, galvanized					91.50			91.50	101
Vinyl coated					102			102	112
Aluminized					105			105	116
2-1/4" mesh, 11.5 ga, galvanized					57.50			57.50	63
1-3/4" mesh (tennis courts), 11.5 ga (core), vinyl coated					57			57	63
9 ga, galvanized					88			88	96.50
Welded wire fabric, galvanized, 1" x 2", 14 ga.					65.50			65.50	72
2" x 4", 12-1/2 ga.					65.50			65.50	72

29 – Wood Fences and Gates

29.20 Fence, Wood Rail

FENCE, WOOD RAIL									
Picket, No. 2 cedar, Gothic, 2 rail, 3' high	B-1	160	.150	L.F.	6.85	5.35		12.20	15.80
Gate, 3'-6" wide	B-80C	9	2.667	Ea.	59	93	24.50	176.50	233
3 rail, 4' high		150	.160	L.F.	7.90	5.60	1.46	14.96	18.85
Gate, 3'-6" wide		9	2.667	Ea.	71	93	24.50	188.50	247
Open rail, rustic, No. 1 cedar, 2 rail, 3' high		160	.150	L.F.	6.10	5.25	1.37	12.72	16.20
Gate, 3' wide		9	2.667	Ea.	68.50	93	24.50	186	244
3 rail, 4' high	▼	150	.160	L.F.	7	5.60	1.46	14.06	17.85

32 31 Fences and Gates

32 31 29 – Wood Fences and Gates

32 31 29.20 Fence, Wood Rail		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Unit
							Labor	Equipment		
0900	Gate, 3' wide	B-80C	9	2.667	Ea.	88	93	24.50	205.50	
1200	Stackade, Na. 2 cedar, treated wood rails, 6' high		160	.150	L.F.	8.55	5.25	1.37	15.17	
1250	Gate, 3' wide		9	2.667	Ea.	70	93	24.50	187.50	
1300	Na. 1 cedar, 3-1/4" cedar rails, 6' high		160	.150	L.F.	19.70	5.25	1.37	26.32	
1500	Gate, 3' wide		9	2.667	Ea.	174	93	24.50	291.50	
1520	Open rail, split, Na. 1 cedar, 2 rail, 3' high		160	.150	L.F.	6.15	5.25	1.37	12.77	
1540	3 rail, 4'-0" high		150	.160		7.45	5.60	1.46	14.51	
3300	Board, shadow box, 1" x 6", treated pine, 6' high		160	.150		11.60	5.25	1.37	18.22	
3400	Na. 1 cedar, 6' high		150	.160		23	5.60	1.46	30.06	
3900	Basket weave, Na. 1 cedar, 6' high		160	.150		35	5.25	1.37	41.62	
3950	Gate, 3'-6" wide	B-1	8	3	Ea.	180	107		287	
4000	Treated pine, 6' high		150	.160	L.F.	17.55	5.70		23.25	
4200	Gate, 3'-6" wide		9	2.667	Ea.	92.50	95.50		188	
5000	Fence rail, redwood, 2" x 4", merch grade 8'		2400	.010	L.F.	2.03	.36		2.39	
5050	Select grade, 8'		2400	.010	"	4.52	.36		4.88	
6000	Fence post, select redwood, earthpacked & treated, 4" x 4" x 6'		96	.250	Ea.	12.75	8.95		21.70	
6010	4" x 4" x 8'		96	.250		15.15	8.95		24.10	
6020	Set in concrete, 4" x 4" x 6'		50	.480		16.40	17.15		33.55	
6030	4" x 4" x 8'		50	.480		19.55	17.15		36.70	
6040	Wood post, 4' high, set in concrete, incl. concrete		50	.480		9.15	17.15		26.30	
6050	Earth packed		96	.250		6.25	8.95		15.20	
6060	6' high, set in concrete, incl. concrete		50	.480		11.70	17.15		28.85	
6070	Earth packed		96	.250		8.55	8.95		17.50	

32 32 Retaining Walls

32 32 13 – Cast-in-Place Concrete Retaining Walls

32 32 13.10 Retaining Walls, Cast Concrete

0010 RETAINING WALLS, CAST CONCRETE										
1800	Concrete gravity wall with vertical face including excavation & backfill									
1850	Na reinforcing									
1900	6' high, level embankment	C-17C	36	2.306	L.F.	70.50	106	16.20	192.70	
2000	33° slope embankment		32	2.594		86.50	119	18.20	223.70	
2200	8' high, na surcharge		27	3.074		92.50	141	21.50	255	
2300	33° slope embankment		24	3.458		112	159	24.50	295.50	
2500	10' high, level embankment		19	4.368		133	200	30.50	363.50	
2600	33° slope embankment		18	4.611		184	212	32.50	428.50	
2800	Reinforced concrete cantilever, incl. excavation, backfill & reinf.									
2900	6' high, 33° slope embankment	C-17C	35	2.371	L.F.	68	109	16.65	193.65	
3000	8' high, 33° slope embankment		29	2.862		78.50	131	20	229.50	
3100	10' high, 33° slope embankment		20	4.150		102	190	29	321	
3200	20' high, 500 lb. per L.F. surcharge		7.50	11.067		305	510	77.50	892.50	
3500	Concrete cribbing, incl. excavation and backfill									
3700	12' high, open face	B-13	210	.267	S.F.	34	10.15	3.32	47.47	
3900	Closed face	"	210	.267	"	32	10.15	3.32	45.47	
4100	Concrete filled slurry trench, see Section 31 56 23.20									

32 32 23 – Segmental Retaining Walls

32 32 23.13 Segmental Conc. Unit Masonry Retaining Walls

0010 SEGMENTAL CONC. UNIT MASONRY RETAINING WALLS										
7100	Segmental Retaining Wall system, incl pins, and void fill									
7120	base not included									

32 Retaining Walls

2 23 – Segmental Retaining Walls

23.13 Segmental Conc. Unit Masonry Retaining Walls	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Large unit, 8" high x 18" wide x 20" deep, 3 plane split	B-62	300	.080	S.F.	12.20	3.07	.53	15.80	18.65
Straight split		300	.080		12.10	3.07	.53	15.70	18.55
Medium, lt.wt., 8" high x 8" wide x 12" deep, 3 plane split		400	.060		9.05	2.30	.40	11.75	13.95
Straight split		400	.060		8.55	2.30	.40	11.25	13.35
Small unit, 4" x 18" x 10" deep, 3 plane split		400	.060		12.95	2.30	.40	15.65	18.20
Straight split		400	.060		13.20	2.30	.40	15.90	18.45
Cap unit, 3 plane split		300	.080		12.75	3.07	.53	16.35	19.25
Cap unit, straight split		300	.080		12.75	3.07	.53	16.35	19.25
For reinforcing, add								4.70	5.15
For higher walls, add components as necessary									

2 26 – Metal Crib Retaining Walls

26.10 Metal Bin Retaining Walls

METAL BIN RETAINING WALLS									
Aluminized steel bin, excavation and backfill not included, 10' wide									
4' high, 5.5' deep	B-13	650	.086	S.F.	27.50	3.28	1.07	31.85	36
8' high, 5.5' deep		615	.091		31.50	3.47	1.13	36.10	41
10' high, 7.7' deep		580	.097		33.50	3.68	1.20	38.38	43.50
12' high, 7.7' deep		530	.106		36	4.02	1.32	41.34	47
16' high, 7.7' deep		515	.109		38	4.14	1.35	43.49	50
16' high, 9.9' deep		500	.112		40	4.27	1.39	45.66	52
20' high, 9.9' deep		470	.119		45	4.54	1.48	51.02	58
20' high, 12.1' deep		460	.122		39.50	4.64	1.52	45.66	52.50
24' high, 12.1' deep		455	.123		42	4.69	1.53	48.22	55.50
24' high, 14.3' deep		450	.124		48.50	4.74	1.55	54.79	62.50
28' high, 14.3' deep		440	.127		50.50	4.85	1.58	56.93	64.50
For plain galvanized bin type walls, deduct					10%				

2 36 – Gabion Retaining Walls

36.10 Stone Gabion Retaining Walls

STONE GABION RETAINING WALLS									
Stone filled gabions, not incl. excavation, Stone, delivered, 3' wide									
Galvanized, 6' high, 33° slope embankment	B-13	49	1.143	L.F.	41	43.50	14.25	98.75	127
Highway surcharge		27	2.074		81.50	79	26	186.50	240
9' high, up to 33° slope embankment		24	2.333		92	89	29	210	269
Highway surcharge		16	3.500		143	133	43.50	319.50	410
12' high, up to 33° slope embankment		14	4		143	152	50	345	445
Highway surcharge		11	5.091		204	194	63.50	461.50	590
For PVC coating, add					20%				

2 60 – Stone Retaining Walls

60.10 Retaining Walls, Stone

RETAINING WALLS, STONE									
Including excavation, concrete footing and stone 3' below grade. Price is exposed face area.									
Decorative random stone, to 6' high, 1'-6" thick, dry set	D-1	35	.457	S.F.	43	18.20		61.20	75
Mortar set		40	.400		48	15.95		63.95	77
Cut stone, to 6' high, 1'-6" thick, dry set		35	.457		43	18.20		61.20	75
Mortar set		40	.400		46	15.95		61.95	74.50
Random stone, 6' to 10' high, 2' thick, dry set		45	.356		46	14.15		60.15	72
Mortar set		50	.320		51	12.75		63.75	75.50
Cut stone, 6' to 10' high, 2' thick, dry set		45	.356		46	14.15		60.15	72

32 32 Retaining Walls

32 32 60 – Stone Retaining Walls

32 32 60.10 Retaining Walls, Stone		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Unit Cost
	Marlar set	D-1	50	.320	S.F.	51	Labor	Equipment		
1200							12.75		63.75	

32 34 Fabricated Bridges

32 34 20 – Fabricated Pedestrian Bridges

32 34 20.10 Bridges, Pedestrian

0010	BRIDGES, PEDESTRIAN									
0011	Spans over streams, roadways, etc.									
0020	including erection, not including foundations									
0050	Precast concrete, complete in place, 8' wide, 60' span	E-2	215	.260	S.F.	108	12.55	6.95	127.50	
0100	100' span		185	.303		118	14.60	8.10	140.70	
0150	120' span		160	.350		129	16.90	9.35	155.25	
0200	150' span		145	.386		134	18.65	10.30	162.95	
0300	Steel, trussed or arch spans, compl. in place, 8' wide, 40' span		320	.175		108	8.45	4.68	121.13	
0400	50' span		395	.142		97	6.85	3.79	107.64	
0500	60' span		465	.120		97	5.80	3.22	106.02	
0600	80' span		570	.098		115	4.74	2.63	122.37	
0700	100' span		465	.120		162	5.80	3.22	171.02	
0800	120' span		365	.153		205	7.40	4.10	216.50	
0900	150' span		310	.181		218	8.70	4.83	231.53	
1000	160' span		255	.220		218	10.60	5.85	234.45	
1100	10' wide, 80' span		640	.088		120	4.22	2.34	126.56	
1200	120' span		415	.135		156	6.50	3.61	166.11	
1300	150' span		445	.126		175	6.05	3.36	184.41	
1400	200' span	▼	205	.273		186	13.20	7.30	206.50	
1600	Wood, laminated type, complete in place, 80' span	C-12	203	.236		64	10.30	3.01	77.31	
1700	130' span	"	153	.314	▼	66.50	13.65	4	84.15	

32 35 Screening Devices

32 35 16 – Sound Barriers

32 35 16.10 Traffic Barriers, Highway Sound Barriers

0010	TRAFFIC BARRIERS, HIGHWAY SOUND BARRIERS									
0020	Highway sound barriers, not including footing									
0100	Precast concrete, concrete columns @ 30' OC, 8" T, 8' H	C-12	400	.120	L.F.	122	5.25	1.53	128.78	
0110	12' H		265	.181		182	7.90	2.31	192.21	
0120	16' H		200	.240		243	10.45	3.06	256.51	
0130	20' H	▼	160	.300		305	13.05	3.83	321.88	
0400	Lt. Wt. composite panel, cementitious face, St. posts @ 12' OC, 8' H	B-80B	190	.168		145	6.30	1.22	152.52	
0410	12' H		125	.256		218	9.60	1.86	229.46	
0420	16' H		95	.337		290	12.65	2.45	305.10	
0430	20' H	▼	75	.427	▼	365	16	3.10	384.10	

84 Planting Irrigation

4 23 - Underground Sprinklers

23.10 Sprinkler Irrigation System					Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bore Costs		Total	Total Incl O&P
SPRINKLER IRRIGATION SYSTEM													
Far lawns													
Golf course with fully automatic system					C-17	.05	1600	9 holes	98,000	73,500		171,500	221,500
24' diam. head at 15' O.C. incl. piping, auto oper., minimum					B-20	70	.343	Head	22	13.45		35.45	45
Maximum						40	.600		54.50	23.50		78	96.50
60' diam. head at 40' O.C. incl. piping, auto oper., minimum						28	.857		69.50	33.50		103	128
Maximum						23	1.043		192	41		233	274
Residential system, custom, 1" supply						2000	.012	S.F.	.34	.47		.81	1.10
1-1/2" supply						1800	.013	"	.39	.52		.91	1.24
Pop up spray head w/risers, hi-pap, full circle pattern, 4"					2 Skwk	76	.211	Ea.	4.31	9.55		13.86	19.55
1/2 circle pattern, 4"						76	.211		4.30	9.55		13.85	19.55
6", full circle pattern						76	.211		9.55	9.55		19.10	25.50
1/2 circle pattern, 6"						76	.211		9.55	9.55		19.10	25.50
12", full circle pattern						76	.211		11.05	9.55		20.60	27
1/2 circle pattern, 12"						76	.211		11.05	9.55		20.60	27
Pop up bubbler head w/risers, hi-pap bubbler head, 4"						76	.211		4.24	9.55		13.79	19.45
6"						76	.211		9.20	9.55		18.75	25
12"						76	.211		11.10	9.55		20.65	27
Impact full/part circle sprinklers, 28'-54' 25-60 PSI						37	.432		18.55	19.65		38.20	51
Spaced 37'-49' @ 25-50 PSI						37	.432		30.50	19.65		50.15	64
Spaced 43'-61' @ 30-60 PSI						37	.432		85	19.65		104.65	124
Spaced 54'-78' @ 40-80 PSI						37	.432		121	19.65		140.65	164
Impact rator pop-up full/part commercial circle sprinklers													
Spaced 42'-65' 35-80 PSI					2 Skwk	25	.640	Ea.	10.50	29		39.50	56.50
Spaced 48'-76' 45-85 PSI					"	25	.640	"	8.50	29		37.50	54.50
Impact rator pop-up part. circle comm., 53'-75', 55-100 PSI, w/accessories													
Plastic case, metal cover					2 Skwk	25	.640	Ea.	82.50	29		111.50	136
Rubber cover						25	.640		62.50	29		91.50	114
Iron case, metal cover						22	.727		133	33		166	197
Rubber cover						22	.727		143	33		176	208
Plastic case, 2 nozzle, metal cover						25	.640		130	29		159	188
Rubber cover						25	.640		130	29		159	188
Iron case, 2 nozzle, metal cover						22	.727		186	33		219	255
Rubber cover						22	.727		186	33		219	255
Impact rator pop-up full circle commercial, 39'-99', 30-100 PSI													
Plastic case, metal cover					2 Skwk	25	.640	Ea.	140	29		169	199
Rubber cover						25	.640		158	29		187	218
Iron case, metal cover						22	.727		203	33		236	274
Rubber cover						22	.727		210	33		243	282
Plastic case, 2 nozzle, metal cover						22	.727		150	33		183	216
Rubber cover						22	.727		150	33		183	216
Iron case, 2 nozzle, metal cover						20	.800		198	36.50		234.50	273
Rubber cover						20	.800		205	36.50		241.50	282
Electric remote control valve, plastic, 3/4"						18	.889		15.95	40.50		56.45	80
1"						18	.889		18.35	40.50		58.85	82.50
1-1/2"						18	.889		73	40.50		113.50	143
2"						18	.889		113	40.50		153.50	187
Quick coupling valves, brass, lacking cover													
Inlet coupling valve, 3/4"					2 Skwk	18.75	.853	Ea.	28.50	38.50		67	91.50
1"						18.75	.853		45.50	38.50		84	111
Controller valve boxes, 6" round boxes						18.75	.853		9.75	38.50		48.25	71
10" round boxes						14.25	1.123		15.50	51		66.50	96
12" square box						9.75	1.641		19.50	74.50		94	137

32 84 Planting Irrigation

32 84 23 – Underground Sprinklers

32 84 23.10 Sprinkler Irrigation System		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total
							Labor	Equipment		
1388	Electromech. control, 14 day 3-60 min, auto start to 23/day									
1390	4 station	2 Skwk	1.04	15.385	Ea.	180	700			880
1400	7 station		.64	25		143	1,125			1,268
1410	12 station		.40	40		188	1,825			2,013
1420	Dual programs, 18 station		.24	66.667		340	3,025			3,365
1430	23 station		.16	100		570	4,550			5,120
1435	Backflow preventer, bronze, 0-175 PSI, w/valves, test cocks									
1440	3/4"	2 Skwk	2	8	Ea.	100	365			465
1450	1"		2	8		121	365			486
1460	1-1/2"		2	8		305	365			670
1470	2"		2	8		291	365			656
1475	Pressure vacuum breaker, brass, 15-150 PSI									
1480	3/4"	2 Skwk	2	8	Ea.	58.50	365			423.50
1490	1"		2	8		69	365			434
1500	1-1/2"		2	8		260	365			625
1510	2"		2	8		282	365			647

32 91 Planting Preparation

32 91 13 – Soil Preparation

32 91 13.16 Mulching

0010	MULCHING									
0100	Aged barks, 3" deep, hand spread	1 Clab	100	.080	S.Y.	2.92	2.81			5.73
0150	Skid steer loader	B-63	13.50	2.963	M.S.F.	325	110	11.80		446.80
0200	Hay, 1" deep, hand spread	1 Clab	475	.017	S.Y.	.33	.59			.92
0250	Power mulcher, small	B-64	180	.089	M.S.F.	36.50	3.09	1.96		41.55
0350	Large	B-65	530	.030	"	36.50	1.05	.94		38.49
0400	Humus peat, 1" deep, hand spread	1 Clab	700	.011	S.Y.	2.80	.40			3.20
0450	Push spreader	"	2500	.003	"	2.80	.11			2.91
0550	Tractor spreader	B-66	700	.011	M.S.F.	310	.51	.35		310.86
0600	Oat straw, 1" deep, hand spread	1 Clab	475	.017	S.Y.	.52	.59			1.11
0650	Power mulcher, small	B-64	180	.089	M.S.F.	58	3.09	1.96		63.05
0700	Large	B-65	530	.030	"	58	1.05	.94		59.99
0750	Add for asphaltic emulsion	B-45	1770	.009	Gal.	5.25	.37	.47		6.09
0800	Peat moss, 1" deep, hand spread	1 Clab	900	.009	S.Y.	2.80	.31			3.11
0850	Push spreader	"	2500	.003	"	2.80	.11			2.91
0950	Tractor spreader	B-66	700	.011	M.S.F.	310	.51	.35		310.86
1000	Polyethylene film, 6 mil.	2 Clab	2000	.008	S.Y.	.24	.28			.52
1100	Redwood nuggets, 3" deep, hand spread	1 Clab	150	.053	"	3	1.87			4.87
1150	Skid steer loader	B-63	13.50	2.963	M.S.F.	335	110	11.80		456.80
1200	Stone mulch, hand spread, ceramic chips, economy	1 Clab	125	.064	S.Y.	7	2.25			9.25
1250	Deluxe	"	95	.084	"	11	2.96			13.96
1300	Granite chips	B-1	10	2.400	C.Y.	36.50	86			122.50
1400	Marble chips		10	2.400		132	86			218
1600	Pea gravel		28	.857		72	30.50			102.50
1700	Quartz		10	2.400		172	86			258
1800	Tar paper, 15 lb. felt	1 Clab	800	.010	S.Y.	.51	.35			.86
1900	Wood chips, 2" deep, hand spread	"	220	.036	"	1.75	1.28			3.03
1950	Skid steer loader	B-63	20.30	1.970	M.S.F.	194	73	7.85		274.85

32 91 13.26 Planting Beds

0010	PLANTING BEDS									
0100	Backfill planting pit, by hand, on site topsoil	2 Clab	18	.889	C.Y.		31			31

91 Planting Preparation

11.13 – Soil Preparation

13.26 Planting Beds	Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
						Labor	Equipment		
Prepared planting mix, by hand	2 Clab	24	.667	C.Y.		23.50		23.50	36
Skid steer loader, on site topsoil	B-62	340	.071			2.71	.47	3.18	4.65
Prepared planting mix	"	410	.059			2.24	.39	2.63	3.86
Excavate planting pit, by hand, sandy soil	2 Clab	16	1			35		35	54
Heavy soil or clay	"	8	2			70		70	108
1/2 C.Y. backhoe, sandy soil	B-11C	150	.107			4.36	2.23	6.59	9.10
Heavy soil or clay	"	115	.139			5.70	2.91	8.61	11.85
Mix planting soil, incl. loam, manure, peat, by hand	2 Clab	60	.267		40	9.35		49.35	58.50
Skid steer loader	B-62	150	.160		40	6.15	1.06	47.21	54.50
Pile sad, skid steer loader	"	2800	.009	S.Y.		.33	.06	.39	.56
By hand	2 Clab	400	.040			1.40		1.40	2.16
Remove sad, F.E. loader	B-10S	2000	.006			.26	.17	.43	.57
Sad cutter	B-12K	3200	.005			.21	.30	.51	.65
By hand	2 Clab	240	.067			2.34		2.34	3.60

11.19 – Landscape Grading

19.13 Topsoil Placement and Grading

TOPSOIL PLACEMENT AND GRADING									
Spread from pile to rough finish grade, F.E. loader, 1.5 C.Y.	B-10S	200	.060	C.Y.		2.56	1.67	4.23	5.75
Up to 200' radius, by hand	1 Clab	14	.571			20		20	31
Top dress by hand, 1 C.Y. for 600 S.F.	"	11.50	.696		33.50	24.50		58	74.50
Furnish and place, truck dumped, screened, 4" deep	B-10S	1300	.009	S.Y.	4.21	.39	.26	4.86	5.50
6" deep	"	820	.015	"	5.40	.63	.41	6.44	7.35

92 Turf and Grasses

12.19 – Seeding

19.13 Mechanical Seeding

MECHANICAL SEEDING									
R329219-50									
Mechanical seeding, 215 lb./acre	B-66	1.50	5.333	Acre	605	239	165	1,009	1,200
44 lb./M.S.Y.	"	2500	.003	S.Y.	.16	.14	.10	.40	.51
Fine grading and seeding incl. lime, fertilizer & seed, with equipment	B-14	1000	.048	S.Y.	.40	1.78	.33	2.51	3.54
Limestone hand push spreader, 50 lb. per M.S.F.	1 Clab	180	.044	M.S.F.	3.30	1.56		4.86	6.05
Grass seed hand push spreader, 4.5 lb. per M.S.F.	"	180	.044	"	17.80	1.56		19.36	22
Hydra air seed for large areas, incl. seed and fertilizer	B-81	8900	.003	S.Y.	.40	.11	.07	.58	.68
With wood fiber mulch added	"	8900	.003	"	1.66	.11	.07	1.84	2.07
Seed only, over 100 lb., field seed, minimum				Lb.	2.28			2.28	2.51
Maximum					2.87			2.87	3.16
Lawn seed, minimum					2.17			2.17	2.39
Maximum					2.90			2.90	3.19
Aerial operations, seeding only, field seed	B-58	50	.480	Acre	740	18.40	59	817.40	910
Lawn seed		50	.480		705	18.40	59	782.40	870
Seed and liquid fertilizer, field seed		50	.480		810	18.40	59	887.40	985
Lawn seed		50	.480		775	18.40	59	852.40	950

12.23 – Sodding

23.10 Sodding Systems

SODDING SYSTEMS									
Sodding, 1" deep, bluegrass sad, on level ground, over 8 M.S.F.	B-63	22	1.818	M.S.F.	175	67.50	7.25	249.75	305
4 M.S.F.		17	2.353		240	87	9.40	336.40	405
1000 S.F.		13.50	2.963		295	110	11.80	416.80	505
Slaped ground, over 8 M.S.F.		6	6.667		175	247	26.50	448.50	605

32 92 Turf and Grasses

32 92 23 - Sodding

32 92 23.10 Sodding Systems		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs			Total	Total
		B-63		8	M.S.F.		Labor	Equipment			Cost
0600	4 M.S.F.		5			240	296	32		568	
0700	1000 S.F.		4	10		295	370	40		705	
1000	Bent grass sod, on level ground, over 6 M.S.F.		20	2		600	74	8		682	
1100	3 M.S.F.		18	2.222		665	82.50	8.85		756.35	
1200	Sodding 1000 S.F. or less		14	2.857		875	106	11.40		992.40	
1500	Sloped ground, over 6 M.S.F.		15	2.667		600	99	10.65		709.65	
1600	3 M.S.F.		13.50	2.963		665	110	11.80		786.80	
1700	1000 S.F.	▼	12	3.333	▼	875	123	13.30		1,011.30	

32 93 Plants

32 93 10 - General Planting Costs

32 93 10.12 Travel

0010	TRAVEL to all nursery items, for 10 to 20 miles, add										
0015	10 to 20 miles one way, add				All						
0100	30 to 50 miles one way, add				"						

32 93 13 - Ground Covers

32 93 13.10 Ground Cover Plants

0010	GROUND COVER PLANTS										
0012	Plants, pachysandra, in prepared beds	B-1	15	1.600	C	31	57			88	12
0200	Vinca minor, 1 yr., bare root, in prepared beds		12	2	"	39	71.50			110.50	15
0600	Stone chips, in 50 lb. bags, Georgia marble		520	.046	Bag	5	1.65			6.65	
0700	Onyx geranium		260	.092		18	3.30			21.30	
0800	Quartz		260	.092	▼	6.90	3.30			10.20	
0900	Pea gravel, truckload lots	▼	28	.857	Ton	30.50	30.50			61	

32 93 33 - Shrubs

32 93 33.10 Shrubs and Trees

0010	SHRUBS AND TREES										
0011	Evergreen, in prepared beds, B & B										
0100	Arbutus pyramidal, 4'-5'	B-17	30	1.067	Ea.	52	40	23		115	14
0150	Globe, 12"-15"	B-1	96	.250		21.50	8.95			30.45	
0300	Cedar, blue, 8'-10'	B-17	18	1.778		220	67	38.50		325.50	38
0500	Hemlock, Canadian, 2'-2'-3'	B-1	36	.667		36	24			60	
0550	Holly, Savannah, 8' - 10' H		9.68	2.479		163	88.50			251.50	2
0600	Juniper, andorra, 18"-24"		80	.300		20	10.75			30.75	
0620	Wiltani, 15"-18"	▼	80	.300		24.50	10.75			35.25	
0640	Skyrocket, 4'-1/2'-5'	B-17	55	.582		139	22	12.55		173.55	28
0660	Blue pfitzer, 2'-2'-1/2'	B-1	44	.545		39	19.50			58.50	
0680	Keteerie, 2'-1/2'-3'		50	.480		40	17.15			57.15	
0700	Pine, black, 2'-1/2'-3'		50	.480		53	17.15			70.15	
0720	Muga, 18"-24"	▼	60	.400		45	14.30			59.30	
0740	White, 4'-5'	B-17	75	.427		40	16.05	9.20		65.25	
0800	Spruce, blue, 18"-24"	B-1	60	.400		49	14.30			63.30	
0840	Narway, 4'-5'	B-17	75	.427		75	16.05	9.20		100.25	
0900	Yew, denisforma, 12"-15"	B-1	60	.400		34.50	14.30			48.80	
1000	Capitata, 18"-24"		30	.800		18	28.50			46.50	
1100	Hicksi, 2'-2'-1/2'	▼	30	.800	▼	32	28.50			60.50	

32 93 33.20 Shrubs

0010	SHRUBS										
0011	Broadleaf Evergreen, planted in prepared beds										
0100	Andromeda, 15"-18", container	B-1	96	.250	Ea.	18	8.95			26.95	

93 Plants

33 – Shrubs

33.20 Shrubs	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Azalea, 15" - 18", container	B-1	96	.250	Ea.	22	8.95		30.95	38
Barberry, 9"-12", container		130	.185		13	6.60		19.60	24.50
Baxwood, 15"-18", B&B		96	.250		30	8.95		38.95	47
Euonymus, emerald gaiety, 12" to 15", container		115	.209		22	7.45		29.45	35.50
Holly, 15"-18", B & B		96	.250		17	8.95		25.95	32.50
Mount laurel, 18" - 24", B & B		80	.300		55	10.75		65.75	77
Paxistema, 9 - 12" high		130	.185		20	6.60		26.60	32
Rhododendron, 18"-24", container		48	.500		28.50	17.90		46.40	59
Rosemary, 1 gal. container		600	.040		10.60	1.43		12.03	13.85
Deciduous, planted in prepared beds, amelanchier, 2'-3', B & B		57	.421		119	15.05		134.05	154
Azalea, 15"-18", B & B		96	.250		17.50	8.95		26.45	33
Bayberry, 2'-3', B & B		57	.421		22	15.05		37.05	47
Catanaster, 15"-18", B & B	▼	80	.300		10.60	10.75		21.35	28
Dagwood, 3'-4', B & B	B-17	40	.800		27	30	17.30	74.30	94.50
Euonymus, alatus compacta, 15" to 18", container	B-1	80	.300		22	10.75		32.75	40.50
Forsythia, 2'-3', container	"	60	.400		22	14.30		36.30	46
Hibiscus, 3'-4', B & B	B-17	75	.427		41.50	16.05	9.20	66.75	80
Honeysuckle, 3'-4', B & B	B-1	60	.400		20.50	14.30		34.80	44.50
Hydrangea, 2'-3', B & B	"	57	.421		27	15.05		42.05	52.50
Lilac, 3'-4', B & B	B-17	40	.800		19.65	30	17.30	66.95	86.50
Privet, bare root, 18"-24"	B-1	80	.300		22	10.75		32.75	40.50
Quince, 2'-3', B & B	"	57	.421		23	15.05		38.05	48.50
Russian olive, 3'-4', B & B	B-17	75	.427		25	16.05	9.20	50.25	62
Spirea, 3'-4', B & B	B-1	70	.343		21.50	12.25		33.75	43
Viburnum, 3'-4', B & B	B-17	40	.800	▼	21.50	30	17.30	68.80	88.50

343 – Trees

43.20 Trees									
TREES									
Deciduous, in prep. beds, balled & burlapped (B&B)									
Ash, 2" caliper	G	B-17	8	4	Ea.	200	150	86.50	436.50
Beech, 5'-6'	G		50	.640		180	24	13.85	217.85
Birch, 6'-8', 3 stems	G		20	1.600		210	60	34.50	304.50
Crabapple, 6'-8'	G		20	1.600		99	60	34.50	193.50
Dagwood, 4'-5'	G		40	.800		138	30	17.30	185.30
Eastern redbud 4'-5'	G		40	.800		117	30	17.30	164.30
Elm, 8'-10'	G		20	1.600		137	60	34.50	231.50
Ginkgo, 6'-7'	G		24	1.333		177	50	29	256
Hawthorn, 8'-10', 1" caliper	G		20	1.600		173	60	34.50	267.50
Honeylocust, 10'-12', 1-1/2" caliper	G		10	3.200		162	120	69	351
Larch, 8'	G		32	1		106	37.50	21.50	165
Linden, 8'-10', 1" caliper	G		20	1.600		129	60	34.50	223.50
Magnolia, 4'-5'	G		20	1.600		94	60	34.50	188.50
Maple, red, 8'-10', 1-1/2" caliper	G		10	3.200		191	120	69	380
Mountain ash, 8'-10', 1" caliper	G		16	2		184	75	43	302
Oak, 2-1/2"-3" caliper	G		6	5.333		264	200	115	579
Planetree, 9'-11', 1-1/4" caliper	G		10	3.200		122	120	69	311
Plum, 6'-8', 1" caliper	G		20	1.600		98	60	34.50	192.50
Poplar, 9'-11', 1-1/4" caliper	G		10	3.200		101	120	69	290
Sumac, 2'-3'	G		75	.427		23	16.05	9.20	48.25
Tulip, 5'-6'	G		40	.800		59	30	17.30	106.30
Willow, 6'-8', 1" caliper	G	▼	20	1.600	▼	67.50	60	34.50	162

32 94 Planting Accessories

32 94 13 – Landscape Edging

32 94 13.20 Edging		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Unit
	EDGING						Labor	Equipment		
0010										
0050	Aluminum alloy, including stakes, 1/8" x 4", mill finish	B-1	390	.062	L.F.	3.94	2.20		6.14	
0051	Black paint		390	.062		4.57	2.20		6.77	
0052	Black anodized		390	.062		5.30	2.20		7.50	
0100	Brick, set horizontally, 1-1/2 bricks per L.F.	D-1	370	.043		1.35	1.72		3.07	
0150	Set vertically, 3 bricks per L.F.	"	135	.119		3	4.72		7.72	
0200	Corrugated aluminum, roll, 4" wide	1 Corp	650	.012		1.84	.54		2.38	
0250	6" wide	"	550	.015		2.30	.64		2.94	
0600	Railroad ties, 6" x 8"	2 Corp	170	.094		3.97	4.15		8.12	
0650	7" x 9"		136	.118		4.41	5.20		9.61	
0750	Redwood 2" x 4"		330	.048		2.26	2.14		4.40	
0800	Steel edge strips, incl. stakes, 1/4" x 5"	B-1	390	.062		2.50	2.20		4.70	
0850	3/16" x 4"	"	390	.062		1.98	2.20		4.18	

32 94 50 – Tree Guying

32 94 50.10 Tree Guying Systems										
	TREE GUYING SYSTEMS									
0010										
0015	Tree guying including stakes, guy wire and wrap									
0100	Less than 3" caliper, 2 stakes	2 Clab	35	.457	Ea.	14	16.05		30.05	
0200	3" to 4" caliper, 3 stakes	"	21	.762	"	18.95	26.50		45.45	
1000	Including arrowhead anchor, cable, turnbuckles and wrap									
1100	Less than 3" caliper, 3" anchors	2 Clab	20	.800	Ea.	44	28		72	
1200	3" to 6" caliper, 4" anchors		15	1.067		37.50	37.50		75	
1300	6" caliper, 6" anchors		12	1.333		44	47		91	
1400	8" caliper, 8" anchors		9	1.778		126	62.50		188.50	

32 96 Transplanting

32 96 23 – Plant and Bulb Transplanting

32 96 23.23 Planting										
	PLANTING									
0010										
0012	Moving shrubs on site, 12" ball	B-62	28	.857	Ea.		33	5.70	38.70	
0100	24" ball	"	22	1.091	"		42	7.25	49.25	
32 96 23.43 Moving Trees										
0290	MOVING TREES, On site									
0300	Moving trees on site, 36" ball	B-6	3.75	6.400	Ea.		245	89	334	
0400	60" ball	"	1	24	"		920	335	1,255	

Estimating Tips

33 00 00 Water Utilities

33 00 00 Sanitary

Wastewater Utilities

33 00 00 Storm

Drainage Utilities

Never assume that the water, sewer, and drainage lines will be in place at the early stages of the project. Consider the site access needs before dividing the site in half with open trenches, loose pipe, and machinery obstructions. Always inspect the site to establish that the site drawings are complete. Check off all existing utilities on your drawings as you locate them. Be especially careful with underground utilities because

appurtenances are sometimes buried during regrading or repaving operations. If you find any discrepancies, mark up the site plan for further research. Differing site conditions can be very costly if discovered later in the project.

- See also Section 33 01 00 for restoration of pipe where removal/replacement may be undesirable. Use of new types of piping materials can reduce the overall project cost. Owners/design engineers should consider the installing contractor as a valuable source of current information on utility products and local conditions that could lead to significant cost savings.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

Division 33 - Utilities

Trade Service, in part, has been used as a reference source for some of the material prices used in Division 33.

33 01 Operation and Maintenance of Utilities

33 01 10 – Operation and Maintenance of Water Utilities

33 01 10.10 Corrosion Resistance		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	
							Labor	Equipment		
0010	CORROSION RESISTANCE									
0012	Wrap & coat, add to pipe, 4" diameter				L.F.	2.24				2.24
0040	6" diameter					3.36				3.36
0060	8" diameter					4.36				4.36
0100	12" diameter					6.60				6.60
0200	24" diameter					12.70				12.70
0500	Coating, bituminous, per diameter inch, 1 coat, add					.55				.55
0540	3 coat					1.65				1.65
0560	Coal tar epoxy, per diameter inch, 1 coat, add					.28				.28
0600	3 coat					.84				.84

33 01 30 – Operation and Maintenance of Sewer Utilities

33 01 30.72 Relining Sewers

0010	RELINING SEWERS									
0011	With cement incl. bypass & cleaning									
0020	Less than 10,000 L.F., urban, 6" to 10"	C-17E	130	.615	L.F.	9.20	28	.70		37.90
0200	24" to 36"		90	.889		14.65	40.50	1		56.15
0300	48" to 72"	▼	80	1	▼	23.50	46	1.13		70.63

33 05 Common Work Results for Utilities

33 05 16 – Utility Structures

33 05 16.13 Precast Concrete Utility Boxes

0010	PRECAST CONCRETE UTILITY BOXES, 6" thick									
0050	5' x 10' x 6' high, I.D.	B-13	2	28	Ea.	2,475	1,075	350		3,900
0100	6' x 10' x 6' high, I.D.		2	28		2,575	1,075	350		4,000
0150	5' x 12' x 6' high, I.D.		2	28		2,725	1,075	350		4,150
0200	6' x 12' x 6' high, I.D.		1.80	31.111		3,050	1,175	385		4,610
0250	6' x 13' x 6' high, I.D.		1.50	37.333		4,000	1,425	465		5,890
0300	8' x 14' x 7' high, I.D.	▼	1	56	▼	4,325	2,125	695		7,145
0350	Hand hole, precast concrete, 1-1/2" thick									
0400	1'-0" x 2'-0" x 1'-9", I.D., light duty	B-1	4	6	Ea.	390	215			605
0450	4'-6" x 3'-2" x 2'-0", O.D., heavy duty	B-6	3	8	"	1,400	305	111		1,816

33 05 23 – Trenchless Utility Installation

33 05 23.19 Microtunneling

0010	MICROTUNNELING									
0011	Not including excavation, backfill, shoring,									
0020	or dewatering, average 50' /day, slurry method									
0100	24" to 48" outside diameter, minimum				L.F.					830
0110	Adverse conditions, add				%					50%
1000	Rent microtunneling machine, average monthly lease				Month					92,000
1010	Operating technician				Day					610
1100	Mobilization and demobilization, minimum				Job					40,000
1110	Maximum				"					420,000

33 05 23.20 Horizontal Boring

0010	HORIZONTAL BORING									
0011	Casing only, 100' minimum,									
0020	not incl. jacking pits or dewatering									
0100	Roadwork, 1/2" thick wall, 24" diameter casing	B-42	20	3.200	L.F.	146	126	63.50		335.50
0200	36" diameter		16	4		220	158	79		457
0300	48" diameter		15	4.267		294	168	84.50		546.50
0500	Railroad work, 24" diameter	▼	15	4.267	▼	146	168	84.50		398.50

05 Common Work Results for Utilities

5 23 – Trenchless Utility Installation

5 23.20 Horizontal Boring	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
36" diameter	B-42	14	4.571	L.F.	220	181	90.50	491.50	625
48" diameter	▼	12	5.333		294	211	106	611	770
For ledge, add				▼					20%

5 26 – Utility Identification

5 26.10 Utility Accessories

UTILITY ACCESSORIES									
Underground tape, detectable, reinforced, alum. foil core, 2"	1 Clab	150	.053	C.L.F.	2.05	1.87		3.92	5.15
6"	"	140	.057	"	5.60	2.01		7.61	9.25

11 Water Utility Distribution Piping

11 13 – Public Water Utility Distribution Piping

11 13.15 Water Supply, Ductile Iron Pipe

WATER SUPPLY, DUCTILE IRON PIPE	R331113-80								
Not including excavation or backfill									
Pipe, class 50 water piping, 18' lengths									
Mechanical joint, 4" diameter	B-21A	200	.200	L.F.	12.60	8.75	2.24	23.59	29.50
6" diameter		160	.250		14.75	10.90	2.80	28.45	36
8" diameter		133.33	.300		21.50	13.10	3.36	37.96	47
10" diameter		114.29	.350		26	15.30	3.92	45.22	56
12" diameter		105.26	.380		31.50	16.60	4.26	52.36	64
14" diameter		100	.400		49	17.45	4.48	70.93	85
16" diameter		72.73	.550		50.50	24	6.15	80.65	99
18" diameter		68.97	.580		53.50	25.50	6.50	85.50	105
20" diameter		57.14	.700		56.50	30.50	7.85	94.85	117
24" diameter		47.06	.850		61.50	37	9.55	108.05	135
Tyton, push-on joint, 4" diameter		400	.100		11.40	4.37	1.12	16.89	20.50
6" diameter		333.33	.120		15.80	5.25	1.35	22.40	27
8" diameter		200	.200		22	8.75	2.24	32.99	40
10" diameter		181.82	.220		31.50	9.60	2.47	43.57	52
12" diameter		160	.250		33	10.90	2.80	46.70	56
14" diameter		133.33	.300		36.50	13.10	3.36	52.96	63.50
16" diameter		114.29	.350		49.50	15.30	3.92	68.72	82
18" diameter		100	.400		55	17.45	4.48	76.93	92
20" diameter		88.89	.450		57.50	19.65	5.05	82.20	98.50
24" diameter	▼	76.92	.520	▼	72	22.50	5.85	100.35	120
Fittings, mechanical joint									
90° bend, 4" diameter	B-20A	16	2	Eq.	251	85.50		336.50	405
6" diameter		12.80	2.500		375	107		482	570
8" diameter	▼	10.67	2.999		665	128		793	925
10" diameter	B-21A	11.43	3.500		890	153	39	1,082	1,250
12" diameter		10.53	3.799		1,250	166	42.50	1,458.50	1,675
14" diameter		10	4		1,675	175	45	1,895	2,175
16" diameter		7.27	5.502		2,175	240	61.50	2,476.50	2,825
18" diameter		6.90	5.797		2,925	253	65	3,243	3,675
20" diameter		5.71	7.005		3,675	305	78.50	4,058.50	4,600
24" diameter	▼	4.70	8.511		5,675	370	95.50	6,140.50	6,925
Wye or tee, 4" diameter	B-20A	10.67	2.999		405	128		533	640
6" diameter		8.53	3.751		615	160		775	920
8" diameter	▼	7.11	4.501		975	192		1,167	1,375
10" diameter	B-21A	7.62	5.249	▼	1,400	229	59	1,688	1,975

33 11 Water Utility Distribution Piping

33 11 13 – Public Water Utility Distribution Piping

33 11 13.15 Water Supply, Ductile Iron Pipe		Crew	Daily Output	Labor Hours	Unit	Material	2012 Bare Costs		Total	Total
							Labor	Equipment		Unit
8280	12" diameter	B-21A	7.02	5.698		1,850	249	64	2,163	2.47
8300	14" diameter		6.67	5.997		2,750	262	67	3,079	3.38
8320	16" diameter		4.85	8.247		3,550	360	92.50	4,002.50	4.39
8340	18" diameter		4.60	8.696		4,400	380	97.50	4,877.50	5.30
8360	20" diameter		3.81	10.499		6,200	460	118	6,778	7.34
8380	24" diameter		3.14	12.739		10,500	555	143	11,198	12.06
8450	Decreaser, 6" x 4" diameter	B-20A	14.22	2.250		330	96		426	.51
8460	8" x 6" diameter	"	11.64	2.749		485	117		602	.71
8470	10" x 6" diameter	B-21A	13.33	3.001		590	131	33.50	754.50	.88
8480	12" x 6" diameter		12.70	3.150		730	138	35.50	903.50	1.02
8490	16" x 6" diameter		10	4		1,300	175	45	1,520	1.75
8500	20" x 6" diameter		8.42	4.751		2,750	207	53.50	3,010.50	3.40
8550	Piping, butterfly valves, cast iron									
8560	4" diameter	B-20	6	4	Ea.	800	157		957	1.11
8570	6" diameter	"	5	4.800		850	188		1,038	1.22
8580	8" diameter	B-21	4	7		1,125	283	33	1,441	1.72
8590	10" diameter		3.50	8		1,700	325	38	2,063	2.41
8600	12" diameter		3	9.333		2,425	375	44	2,844	3.33
8610	14" diameter		2	14		4,100	565	66	4,731	5.43
8620	16" diameter		2	14		4,825	565	66	5,456	6.27

33 11 13.25 Water Supply, Polyvinyl Chloride Pipe

0010	WATER SUPPLY, POLYVINYL CHLORIDE PIPE									
0020	Not including excavation or backfill, unless specified									
2100	PVC pipe, Class 150, 1-1/2" diameter	Q-1A	750	.013	L.F.	.33	.73			1.06
2120	2" diameter		686	.015		.45	.80			1.25
2140	2-1/2" diameter		500	.020		.65	1.10			1.75
2160	3" diameter	B-20	430	.056		.93	2.19			3.12
3010	AWWA C905, PR 100, DR 25									
3030	14" diameter	B-20A	213	.150	L.F.	14	6.40			20.40
3040	16" diameter		200	.160		14.20	6.80			21
3050	18" diameter		160	.200		24	8.55			32.55
3060	20" diameter		133	.241		30	10.25			40.25
3070	24" diameter		107	.299		43	12.75			55.75
3080	30" diameter		80	.400		80	17.05			97.05
3090	36" diameter		80	.400		124	17.05			141.05
3100	42" diameter		60	.533		166	22.50			188.50
3200	48" diameter		60	.533		217	22.50			239.50
4520	Pressure pipe Class 150, SDR 18, AWWA C900, 4" diameter		380	.084		2.34	3.59			5.93
4530	6" diameter		316	.101		5.70	4.32			10.02
4540	8" diameter		264	.121		9.50	5.15			14.65
4550	10" diameter		220	.145		12.45	6.20			18.65
4560	12" diameter		186	.172		17.60	7.35			24.95
8000	Fittings with rubber gasket									
8003	Class 150, D.R. 18									
8006	90° Bend, 4" diameter	B-20	100	.240	Ea.	49.50	9.40			58.90
8020	6" diameter		90	.267		88	10.45			98.45
8040	8" diameter		80	.300		158	11.75			169.75
8060	10" diameter		50	.480		330	18.80			348.80
8080	12" diameter		30	.800		425	31.50			456.50
8100	Tee, 4" diameter		90	.267		58	10.45			68.45
8120	6" diameter		80	.300		145	11.75			156.75
8140	8" diameter		70	.343		190	13.45			203.45

11 Water Utility Distribution Piping

11.13 – Public Water Utility Distribution Piping

13.25 Water Supply, Polyvinyl Chloride Pipe	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
10" diameter	B-20	40	.600	Eq.	565	23.50		588.50	655
12" diameter		20	1.200		710	47		757	855
45° Bend, 4" diameter		100	.240		47	9.40		56.40	66
6" diameter		90	.267		85.50	10.45		95.95	110
8" diameter		50	.480		167	18.80		185.80	212
10" diameter		50	.480		330	18.80		348.80	390
12" diameter		30	.800		420	31.50		451.50	510
Reducing tee 6" x 4"		100	.240		129	9.40		138.40	157
8" x 6"		90	.267		248	10.45		258.45	288
10" x 6"		90	.267		350	10.45		360.45	400
10" x 8"		90	.267		365	10.45		375.45	415
12" x 6"		90	.267		430	10.45		440.45	485
12" x 8"		90	.267		470	10.45		480.45	530
Tapped service tee (threaded type) 6" x 6" x 3/4"		100	.240		95	9.40		104.40	120
6" x 6" x 1"		90	.267		95	10.45		105.45	121
6" x 6" x 1-1/2"		90	.267		95	10.45		105.45	121
6" x 6" x 2"		90	.267		95	10.45		105.45	121
8" x 8" x 3/4"		90	.267		140	10.45		150.45	170
8" x 8" x 1"		90	.267		140	10.45		150.45	170
8" x 8" x 1-1/2"		90	.267		140	10.45		150.45	170
8" x 8" x 2"		90	.267		140	10.45		150.45	170
Repair coupling 4"		100	.240		25.50	9.40		34.90	42.50
6" diameter		90	.267		40	10.45		50.45	60
8" diameter		50	.480		96	18.80		114.80	135
10" diameter		50	.480		202	18.80		220.80	251
12" diameter		50	.480		295	18.80		313.80	355
Plug end 4"		100	.240		22.50	9.40		31.90	39.50
6" diameter		90	.267		40.50	10.45		50.95	60.50
8" diameter		50	.480		69.50	18.80		88.30	105
10" diameter		50	.480		96.50	18.80		115.30	135
12" diameter		50	.480		118	18.80		136.80	159

12 Water Utility Distribution Equipment

12.19 – Water Utility Distribution Fire Hydrants

12.19.10 Fire Hydrants

FIRE HYDRANTS									
Mechanical joints unless otherwise noted									
Fire hydrants, two way; excavation and backfill not incl.									
4-1/2" valve size, depth 2'-0"	B-21	10	2.800	Eq.	1,450	113	13.25	1,576.25	1,800
2'-6"		10	2.800		1,525	113	13.25	1,651.25	1,875
3'-0"		10	2.800		1,650	113	13.25	1,776.25	2,000
7'-0"		6	4.667		1,900	189	22	2,111	2,400
Lower barrel extensions with stems, 1'-0"	B-20	14	1.714		380	67		447	525
3'-0"	"	12	2		740	78.50		818.50	935

33 16 Water Utility Storage Tanks

33 16 13 – Aboveground Water Utility Storage Tanks

33 16 13.13 Steel Water Storage Tanks		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Unit
STEEL WATER STORAGE TANKS							Labor	Equipment		
0910	Steel, ground level, ht./diam. less than 1, not incl. fdn., 100,000 gallons				Ea.				180,000	213
1000	250,000 gallons								263,000	268
1200	500,000 gallons								372,000	408
1250	750,000 gallons								479,500	537
1300	1,000,000 gallons								588,000	643
1500	2,000,000 gallons								1,022,500	1,023
1600	4,000,000 gallons								1,890,500	2,074
1800	6,000,000 gallons								2,758,500	3,034
1850	8,000,000 gallons								3,625,500	3,988
1910	10,000,000 gallons				▼				4,501,000	4,950
2100	Steel standpipes, ht./diam. more than 1, 100' to overflow, no fdn.									
2200	500,000 gallons				Ea.				487,500	535
2400	750,000 gallons								644,000	708
2500	1,000,000 gallons								945,000	1,040
2700	1,500,000 gallons								1,558,500	1,714
2800	2,000,000 gallons				▼				2,074,000	2,283

33 16 13.16 Prestressed Conc. Aboveground Water Utility Storage Tanks

PRESTRESSED CONC. ABOVEGROUND WATER UTILITY STORAGE TANKS										
0010	Not including fdn., pipe or pumps, 250,000 gallons				Ea.				267,500	295
0100	500,000 gallons								436,500	480
0300	1,000,000 gallons								633,000	698
0400	2,000,000 gallons								960,000	1,054
0600	4,000,000 gallons								1,528,000	1,680
0700	6,000,000 gallons								2,030,000	2,237
0750	8,000,000 gallons								2,619,000	2,882
0800	10,000,000 gallons				▼				3,164,000	3,448

33 16 13.23 Plastic-Coated Fabric Pillow Water Tanks

PLASTIC-COATED FABRIC PILLOW WATER TANKS										
7000	Water tanks, vinyl coated fabric pillow tanks, freestanding, 5,000 gallons	4 Clab	4	8	Ea.	4,600	281		4,881	
7100	Supporting embankment not included, 25,000 gallons	6 Clab	2	24		10,500	840		11,340	
7200	50,000 gallons	8 Clab	1.50	42.667		18,500	1,500		20,000	
7300	100,000 gallons	9 Clab	.90	80		40,000	2,800		42,800	
7400	150,000 gallons		.50	144		57,500	5,050		62,550	
7500	200,000 gallons		.40	180		70,000	6,325		76,325	
7600	250,000 gallons	▼	.30	240	▼	100,000	8,425		108,425	

33 16 19 – Elevated Water Utility Storage Tanks

33 16 19.50 Elevated Water Storage Tanks

ELEVATED WATER STORAGE TANKS										
0010	Not incl. pipe, pumps or foundation									
0011	Elevated water tanks, 100' to bottom capacity line, incl. painting									
3000	50,000 gallons				Ea.				167,000	18
3300	100,000 gallons								255,000	28
3400	250,000 gallons								706,000	77
3600	500,000 gallons								1,255,000	138
3700	750,000 gallons								1,523,000	167
3900	1,000,000 gallons				▼				2,180,000	240

21 Water Supply Wells

13 – Public Water Supply Wells

13.10 Wells and Accessories		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
WELLS & ACCESSORIES							Labor	Equipment		
010	Domestic									
010	Drilled, 4" to 6" diameter	B-23	120	.333	L.F.		11.85	22.50	34.35	43
020	8" diameter	"	95.20	.420	"		14.90	28.50	43.40	54.50
040	Gravel pack well, 40' deep, incl. gravel & casing, complete									
050	24" diameter casing x 18" diameter screen	B-23	.13	307	Total	36,200	10,900	20,800	67,900	79,500
060	36" diameter casing x 18" diameter screen		.12	333	"	37,400	11,800	22,500	71,700	84,000
080	Observation wells, 1-1/4" riser pipe	↓	163	.245	V.L.F.	18.20	8.70	16.60	43.50	51.50
090	For flush Buffalo roadway box, add	1 Skwk	16.60	.482	Ea.	49.50	22		71.50	88.50
100	Test well, 2-1/2" diameter, up to 50' deep (15 to 50 GPM)	B-23	1.51	26.490	"	745	940	1,800	3,485	4,250
110	Over 50' deep, add	"	121.80	.328	L.F.	19.85	11.65	22	53.50	64.50
120	Pumps, installed in wells to 100' deep, 4" submersible									
130	1/2 H.P.	Q-1	3.22	4.969	Ea.	420	244		664	830
140	3/4 H.P.		2.66	6.015		625	296		921	1,125
150	1 H.P.	↓	2.29	6.987		680	345		1,025	1,275
160	1-1/2 H.P.	Q-22	1.60	10		780	490	385	1,655	2,025
170	2 H.P.		1.33	12.030		850	590	460	1,900	2,325
180	3 H.P.		1.14	14.035		1,325	690	535	2,550	3,125
190	5 H.P.		1.14	14.035		2,225	690	535	3,450	4,100
200	Pump, 6" submersible, 25' to 150' deep, 25 H.P., 249 to 297 GPM		.89	17.978		7,350	885	690	8,925	10,200
210	25' to 500' deep, 30 H.P., 100 to 300 GPM	↓	.73	21.918	↓	8,650	1,075	840	10,565	12,000
220	Steel well casing	B-23A	3020	.008	Lb.	.78	.31	.85	1.94	2.28
230	See Section 31 23 19.40 for wellpoints									
240	See Section 31 23 19.30 for drainage wells									

13.20 Water Supply Wells, Pumps

WATER SUPPLY WELLS, PUMPS										
010	With pressure control									
020	Deep well, jet, 42 gal. galvanized tank									
030	3/4 HP	1 Plum	.80	10	Ea.	1,350	545		1,895	2,300
040	Shallow well, jet, 30 gal. galvanized tank									
050	1/2 HP	1 Plum	2	4	Ea.	1,050	218		1,268	1,500

31 Sanitary Utility Sewerage Piping

13 – Public Sanitary Utility Sewerage Piping

13.15 Sewage Collection, Concrete Pipe

SEWAGE COLLECTION, CONCRETE PIPE										
010	See Section 33 41 13.60 for sewage/drainage collection, concrete pipe									

13.25 Sewage Collection, Polyvinyl Chloride Pipe

SEWAGE COLLECTION, POLYVINYL CHLORIDE PIPE										
010	Not including excavation or backfill									
020	20' lengths, S.D.R. 35, B&S, 4" diameter	B-20	375	.064	L.F.	1.64	2.51		4.15	5.65
030	6" diameter		350	.069		3.45	2.69		6.14	7.95
040	13' lengths, S.D.R. 35, B&S, 8" diameter	↓	335	.072		7.85	2.81		10.66	12.95
050	10" diameter	B-21	330	.085		12.70	3.43	.40	16.53	19.65
060	12" diameter		320	.088		14.70	3.54	.41	18.65	22
070	15" diameter	↓	240	.117		15.15	4.72	.55	20.42	24.50
080	Piping, DWV PVC, on exc./bkfill., 10' L, Sch 40, 4" diameter	B-20	375	.064		4.09	2.51		6.60	8.35
090	6" diameter		350	.069		8.45	2.69		11.14	13.45
100	8" diameter	↓	335	.072	↓	15.30	2.81		18.11	21

33 36 Utility Septic Tanks

33 36 13 – Utility Septic Tank and Effluent Wet Wells

33 36 13.10 Septic Tanks		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Unit
SEPTIC TANKS							Labor	Equipment		
0010	Not including excavation or piping									
0015	Septic tanks, precast, 1,000 gallon	B-21	8	3.500	Ea.	1,025	142	16.55	1,183.55	1.35
0060	1,500 gallon	↓	7	4		1,575	162	18.90	1,755.90	2.00
0100	2,000 gallon	↓	5	5.600		2,000	226	26.50	2,252.50	2.50
0200	5,000 gallon	B-13	3.50	16		9,100	610	199	9,909	11.00
0300	15,000 gallon, 4 piece	B-13B	1.70	32.941		20,900	1,250	645	22,795	25.00
0400	25,000 gallon, 4 piece	↓	1.10	50.909		40,500	1,950	1,000	43,450	48.00
0500	40,000 gallon, 4 piece	↓	.80	70		52,000	2,675	1,375	56,050	63.00
0520	50,000 gallon, 5 piece	B-13C	.60	93.333		60,000	3,550	2,725	66,275	74.00
0540	75,000 gallon, cast in place	C-14C	.25	448		73,000	18,900	108	92,008	104.00
0560	100,000 gallon	"	.15	746		90,000	31,600	179	121,779	148.00
0600	High density polyethylene, 1,000 gallon	B-21	6	4.667		1,100	189	22	1,311	1.50
0700	1,500 gallon	↓	4	7		1,400	283	33	1,716	2.00
0900	Galley, 4' x 4' x 4'	↓	16	1.750		260	71	8.30	339.30	4.00
1000	Distribution boxes, concrete, 7 outlets	2 Clab	16	1		75	35		110	1.00
1100	9 outlets	↓	8	2		460	70		530	6.00
1120	Distribution boxes, HDPE, 5 outlets	↓	20	.800		45	28		73	1.00
1125	8 outlets	↓	10	1.600		56	56		112	1.00
1150	Leaching field chambers, 13' x 3'-7" x 1'-4", standard	B-13	16	3.500		470	133	43.50	646.50	7.00
1190	Distribution boxes, Outlet Flow Leveler	1 Clab	50	.160		2.95	5.60		8.55	1.00
1200	Heavy duty, 8' x 4' x 1'-6"	B-13	14	4		278	152	50	480	5.00
1300	13' x 3'-9" x 1'-6"	↓	12	4.667		1,050	178	58	1,286	14.00
1350	20' x 4' x 1'-6"	↓	5	11.200		1,100	425	139	1,664	2.00
1400	Leaching pit, precast concrete, 3' diameter, 3' deep	B-21	8	3.500		660	142	16.55	818.55	9.00
1500	6' diameter, 3' section	↓	4.70	5.957		815	241	28	1,084	1.00
2000	Velocity reducing pit, precast conc., 6' diameter, 3' deep	↓	4.70	5.957		1,550	241	28	1,819	2.00
2200	Excavation for septic tank, 3/4 C.Y. backhoe	B-12F	145	.110	C.Y.		4.57	4.46	9.03	1.00
2400	4' trench for disposal field, 3/4 C.Y. backhoe	"	335	.048	L.F.		1.98	1.93	3.91	1.00
2600	Gravel fill, run of bank	B-6	150	.160	C.Y.	20.50	6.15	2.23	28.88	1.00
2800	Crushed stone, 3/4"	"	150	.160	"	39.50	6.15	2.23	47.88	1.00
3000	Effluent filter, 4" diameter	1 Skwk	8	1	Ea.	50	45.50		95.50	1.00
3020	Effluent filter, 6" diameter	"	7	1.143	"	200	52		252	1.00

33 41 Storm Utility Drainage Piping

33 41 13 – Public Storm Utility Drainage Piping

33 41 13.40 Piping, Storm Drainage, Corrugated Metal

PIPING, STORM DRAINAGE, CORRUGATED METAL										
0010	Not including excavation or backfill									
0020	Corrugated metal pipe, galvanized									
2020	Bituminous coated with paved invert, 20' lengths									
2040	8" diameter, 16 ga.	B-14	330	.145	L.F.	11.10	5.40	1.01	17.51	1.00
2060	10" diameter, 16 ga.	↓	260	.185		11.55	6.85	1.29	19.69	1.00
2080	12" diameter, 16 ga.	↓	210	.229		14	8.45	1.59	24.04	1.00
2100	15" diameter, 16 ga.	↓	200	.240		19.45	8.90	1.67	30.02	1.00
2120	18" diameter, 16 ga.	↓	190	.253		21	9.35	1.76	32.11	1.00
2140	24" diameter, 14 ga.	↓	160	.300		25	11.10	2.09	38.19	1.00
2160	30" diameter, 14 ga.	B-13	120	.467		28	17.75	5.80	51.55	1.00
2180	36" diameter, 12 ga.	↓	120	.467		35	17.75	5.80	58.55	1.00
2200	48" diameter, 12 ga.	↓	100	.560		55	21.50	6.95	83.45	1.00
2220	60" diameter, 10 ga.	B-13B	75	.747		85	28.50	14.65	128.15	1.00

31 Storm Utility Drainage Piping

13 - Public Storm Utility Drainage Piping

3.40 Piping, Storm Drainage, Corrugated Metal		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
72" diameter, 8 ga.	Galvanized, uncoated, 20' lengths	B-13B	45	1.244	L.F.	95	47.50	24.50	167	205
8" diameter, 16 ga.		B-14	355	.135	L.F.	8.30	5	.94	14.24	17.90
10" diameter, 16 ga.			280	.171		8.80	6.35	1.19	16.34	21
12" diameter, 16 ga.			220	.218		9.80	8.10	1.52	19.42	25
15" diameter, 16 ga.			220	.218		12.90	8.10	1.52	22.52	28.50
18" diameter, 16 ga.			205	.234		15	8.65	1.63	25.28	31.50
24" diameter, 14 ga.			175	.274		19.20	10.15	1.91	31.26	38.50
30" diameter, 14 ga.		B-13	130	.431		24.50	16.40	5.35	46.25	58
36" diameter, 12 ga.			130	.431		31.50	16.40	5.35	53.25	65.50
48" diameter, 12 ga.			110	.509		46.50	19.40	6.35	72.25	87.50
60" diameter, 10 ga.		B-13B	78	.718		69	27.50	14.10	110.60	134
End sections, 8" diameter		B-14	35	1.371	Eu.	65.50	51	9.55	126.05	161
10" diameter			35	1.371		69.50	51	9.55	130.05	165
12" diameter			35	1.371		103	51	9.55	163.55	202
18" diameter			30	1.600		125	59.50	11.15	195.65	241
24" diameter		B-13	25	2.240		188	85.50	28	301.50	370
30" diameter			25	2.240		297	85.50	28	410.50	485
36" diameter			20	2.800		455	107	35	597	700
48" diameter			10	5.600		900	213	69.50	1,182.50	1,400
60" diameter		B-13B	5	11.200		1,550	425	220	2,195	2,600
72" diameter		"	4	14		1,850	535	275	2,660	3,175

3.41 Sewage/Drainage Collection, Concrete Pipe

SEWAGE/DRAINAGE COLLECTION, CONCRETE PIPE										
Not including excavation or backfill										
Non-reinforced pipe, extra strength, B&S or T&G joints										
6" diameter		B-14	265.04	.181	L.F.	6.40	6.70	1.26	14.36	18.75
8" diameter			224	.214		7.05	7.95	1.49	16.49	21.50
10" diameter			216	.222		7.80	8.25	1.55	17.60	23
12" diameter			200	.240		9.55	8.90	1.67	20.12	26
15" diameter			180	.267		13.05	9.90	1.86	24.81	31.50
18" diameter			144	.333		15.40	12.35	2.32	30.07	38.50
21" diameter			112	.429		18.95	15.85	2.98	37.78	49
24" diameter			100	.480		25.50	17.80	3.34	46.64	59
Reinforced culvert, class 3, no gaskets										
12" diameter		B-14	150	.320	L.F.	11.75	11.85	2.23	25.83	33.50
15" diameter			150	.320		16	11.85	2.23	30.08	38
18" diameter			132	.364		20	13.45	2.53	35.98	45.50
21" diameter			120	.400		24	14.80	2.78	41.58	52
24" diameter			100	.480		28	17.80	3.34	49.14	62
27" diameter		B-13	92	.609		41	23	7.60	71.60	89
30" diameter			88	.636		49	24	7.90	80.90	99.50
36" diameter			72	.778		59	29.50	9.70	98.20	121
42" diameter		B-13B	72	.778		78	29.50	15.30	122.80	148
48" diameter			64	.875		97.50	33.50	17.20	148.20	177
60" diameter			48	1.167		125	44.50	23	192.50	231
72" diameter			40	1.400		204	53.50	27.50	285	335
84" diameter			32	1.750		293	66.50	34.50	394	465
96" diameter			24	2.333		350	89	46	485	570
With gaskets, class 3, 12" diameter		B-21	168	.167		12.90	6.75	.79	20.44	25.50
15" diameter			160	.175		17.60	7.10	.83	25.53	31
18" diameter			152	.184		22	7.45	.87	30.32	37

33 41 Storm Utility Drainage Piping

33 41 13 – Public Storm Utility Drainage Piping

33 41 13.60 Sewage/Drainage Collection, Concrete Pipe		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
							Labor	Equipment	
2240	24" diameter	B-21	136	.206	L.F.	34.50	8.30	.97	43.77
2260	30" diameter	B-13	88	.636		56	24	7.90	87.90
2270	36" diameter	"	72	.778		67.50	29.50	9.70	106.70
2290	48" diameter	B-138	64	.875		109	33.50	17.20	159.70
2310	72" diameter	"	40	1.400		222	53.50	27.50	303
2330	Flared ends, 6'-1" long, 12" diameter	B-21	190	.147		37.50	5.95	.70	44.15
2340	15" diameter		155	.181		40.50	7.30	.85	48.65
2400	6'-2" long, 18" diameter		122	.230		52	9.30	1.09	62.39
2420	24" diameter	↓	88	.318		56	12.85	1.51	70.36
2440	36" diameter	B-13	60	.933		129	35.50	11.60	176.10
3080	Radius pipe, add to pipe prices, 12" to 60" diameter					50%			
3090	Over 60" diameter, add					20%			
3500	Reinforced elliptical, 8' lengths, C507 class 3								
3520	14" x 23" inside, round equivalent 18" diameter	B-21	82	.341	L.F.	55.50	13.80	1.62	70.92
3530	24" x 38" inside, round equivalent 30" diameter	B-13	58	.966		82.50	37	12	131.50
3540	29" x 45" inside, round equivalent 36" diameter		52	1.077		99	41	13.40	153.40
3550	38" x 60" inside, round equivalent 48" diameter		38	1.474		164	56	18.35	238.35
3560	48" x 76" inside, round equivalent 60" diameter		26	2.154		208	82	27	317
3570	58" x 91" inside, round equivalent 72" diameter	↓	22	2.545	↓	315	97	31.50	443.50
3780	Concrete slotted pipe, class 4 mortar joint								
3800	12" diameter	B-21	168	.167	L.F.	35.50	6.75	.79	43.04
3840	18" diameter	"	152	.184	"	41	7.45	.87	49.32
3900	Concrete slotted pipe, Class 4 O-ring joint								
3940	12" diameter	B-21	168	.167	L.F.	35.50	6.75	.79	43.04
3960	18" diameter	"	152	.184	"	41	7.45	.87	49.32

33 42 Culverts

33 42 16 – Concrete Culverts

33 42 16.15 Oval Arch Culverts

0010	0VAL ARCH CULVERTS								
3000	Corrugated galvanized or aluminum, coated & paved								
3020	17" x 13", 16 ga., 15" equivalent	B-14	200	.240	L.F.	17	8.90	1.67	27.57
3040	21" x 15", 16 ga., 18" equivalent		150	.320		20.50	11.85	2.23	34.58
3060	28" x 20", 14 ga., 24" equivalent	↓	125	.384		28	14.20	2.67	44.87
3080	35" x 24", 14 ga., 30" equivalent	↓	100	.480		34	17.80	3.34	55.14
3100	42" x 29", 12 ga., 36" equivalent	B-13	100	.560		39	21.50	6.95	67.45
3120	49" x 33", 12 ga., 42" equivalent	↓	90	.622		49	23.50	7.75	80.25
3140	57" x 38", 12 ga., 48" equivalent	↓	75	.747	↓	58	28.50	9.30	95.80
3160	Steel, plain oval arch culverts, plain								
3180	17" x 13", 16 ga., 15" equivalent	B-14	225	.213	L.F.	12	7.90	1.48	21.38
3200	21" x 15", 16 ga., 18" equivalent		175	.274		15.25	10.15	1.91	27.31
3220	28" x 20", 14 ga., 24" equivalent	↓	150	.320		22	11.85	2.23	36.08
3240	35" x 24", 14 ga., 30" equivalent	B-13	108	.519		27	19.75	6.45	53.20
3260	42" x 29", 12 ga., 36" equivalent		108	.519		34.50	19.75	6.45	60.70
3280	49" x 33", 12 ga., 42" equivalent		92	.609		44	23	7.60	74.60
3300	57" x 38", 12 ga., 48" equivalent		75	.747	↓	53	28.50	9.30	90.80
3320	End sections, 17" x 13"		22	2.545	Eq.	130	97	31.50	258.50
3340	42" x 29"	↓	17	3.294	"	360	125	41	526
3360	Multi-plate arch, steel	B-20	1690	.014	Lb.	1.25	.56		1.81

44 Storm Utility Water Drains

44.13 - Utility Area Drains

44.13.13 Catchbasins

	Crew	Daily Output	Labor-Hours	Unit	Material	2012 Labor	2012 Bare Costs Equipment	Total	Total Incl O&P
CATCHBASINS									
Not including footing & excavation									
Frames & covers, C.I., 24" square, 500 lb.	B-6	7.80	3.077	Ea.	320	118	43	481	575
26" D shape, 600 lb.		7	3.429		480	131	47.50	658.50	785
Light traffic, 18" diameter, 100 lb.		10	2.400		115	92	33.50	240.50	305
24" diameter, 300 lb.		8.70	2.759		192	106	38.50	336.50	415
36" diameter, 900 lb.		5.80	4.138		560	159	57.50	776.50	920
Heavy traffic, 24" diameter, 400 lb.		7.80	3.077		250	118	43	411	500
36" diameter, 1150 lb.		3	8		800	305	111	1,216	1,475
Mass. State standard, 26" diameter, 475 lb.		7	3.429		270	131	47.50	448.50	550
30" diameter, 620 lb.		7	3.429		350	131	47.50	528.50	640
Watertight, 24" diameter, 350 lb.		7.80	3.077		237	118	43	398	485
26" diameter, 500 lb.		7	3.429		390	131	47.50	568.50	685
32" diameter, 575 lb.		6	4		750	153	55.50	958.50	1,125
3 piece cover & frame, 10" deep, 1200 lb., for heavy equipment	B-6	3	8	Ea.	1,000	305	111	1,416	1,700
Raised for paving 1-1/4" to 2" high									
4 piece expansion ring									
20" to 26" diameter	1 Clab	3	2.667	Ea.	147	93.50		240.50	305
30" to 36" diameter	"	3	2.667	"	205	93.50		298.50	370
Frames and covers, existing, raised for paving, 2", including row of brick, concrete collar, up to 12" wide frame	B-6	18	1.333	Ea.	46.50	51	18.55	116.05	150
20" to 26" wide frame		11	2.182		69.50	83.50	30.50	183.50	238
30" to 36" wide frame		9	2.667		86	102	37	225	292
Inverts, single channel brick	D-1	3	5.333		100	213		313	430
Concrete		5	3.200		78	128		206	279
Triple channel, brick		2	8		153	320		473	650
Concrete		3	5.333		132	213		345	465

46 Subdrainage

46.16 - Subdrainage Piping

46.16.25 Piping, Subdrainage, Corrugated Metal

PIPING, SUBDRAINAGE, CORRUGATED METAL									
Not including excavation and backfill									
Aluminum, perforated									
6" diameter, 18 ga.	B-14	380	.126	L.F.	6	4.68	.88	11.56	14.70
8" diameter, 16 ga.		370	.130		11.10	4.81	.90	16.81	20.50
10" diameter, 16 ga.		360	.133		13.90	4.94	.93	19.77	24
12" diameter, 16 ga.		285	.168		15.55	6.25	1.17	22.97	28
18" diameter, 16 ga.		205	.234		23.50	8.65	1.63	33.78	40.50
Uncoated galvanized, perforated									
6" diameter, 18 ga.	B-20	380	.063	L.F.	5.50	2.48		7.98	9.85
8" diameter, 16 ga.	"	370	.065		8.30	2.54		10.84	13.05
10" diameter, 16 ga.	B-21	360	.078		8.80	3.14	.37	12.31	14.95
12" diameter, 16 ga.		285	.098		9.80	3.97	.46	14.23	17.35
18" diameter, 16 ga.		205	.137		15	5.50	.65	21.15	25.50
Steel, perforated, asphalt coated									
6" diameter 18 ga.	B-20	380	.063	L.F.	5.50	2.48		7.98	9.85
8" diameter 18 ga.	"	370	.065		8.30	2.54		10.84	13.05
10" diameter 16 ga.	B-21	360	.078		8.80	3.14	.37	12.31	14.95
12" diameter 16 ga.		285	.098		9.80	3.97	.46	14.23	17.40

33 46 Subdrainage

33 46 16 - Subdrainage Piping

33 46 16.25 Piping, Subdrainage, Corrugated Metal		Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs			Total	
4060	18" diameter 16 ga.	B-21	205	.137	L.F.	15	Labor	5.50	Equipment	.65	21.15
33 46 16.40 Piping, Subdrainage, Polyvinyl Chloride											
0010	PIPING, SUBDRAINAGE, POLYVINYL CHLORIDE										
0020	Perforated, price as solid pipe, Section 33 31 13.25										

33 49 Storm Drainage Structures

33 49 13 - Storm Drainage Manholes, Frames, and Covers

33 49 13.10 Storm Drainage Manholes, Frames and Covers

0010	STORM DRAINAGE MANHOLES, FRAMES & COVERS									
0020	Excludes floating, excavation, backfill (See line items for frame & cover)									
0050	Brick, 4' inside diameter, 4' deep	D-1	1	16	Ea.	410	640			1,050
0100	6' deep		.70	22.857		570	910			1,480
0150	8' deep		.50	32	▼	730	1,275			2,005
0200	For depths over 8', add		4	4	V.L.F.	85	159			244
0400	Concrete blocks (radiol), 4' I.D., 4' deep		1.50	10.667	Ea.	375	425			800
0500	6' deep		1	16		500	640			1,140
0600	8' deep		.70	22.857	▼	630	910			1,540
0700	For depths over 8', add		5.50	2.909	V.L.F.	66	116			182
0800	Concrete, cast in place, 4' x 4', 8" thick, 4' deep	C-14H	2	24	Ea.	445	1,050	13.70		1,508.70
0900	6' deep		1.50	32		635	1,400	18.25		2,053.25
1000	8' deep		1	48	▼	925	2,075	27.50		3,027.50
1100	For depths over 8', add		8	6	V.L.F.	101	261	3.42		365.42
1110	Precast, 4' I.D., 4' deep	B-22	4.10	7.317	Ea.	775	299	48.50		1,122.50
1120	6' deep		3	10		900	410	66		1,376
1130	8' deep		2	15	▼	1,025	615	99.50		1,739.50
1140	For depths over 8', add		16	1.875	V.L.F.	121	76.50	12.40		209.90
1150	5' I.D., 4' deep	B-6	3	8	Ea.	1,625	305	111		2,041
1160	6' deep		2	12		2,025	460	167		2,652
1170	8' deep		1.50	16	▼	2,475	615	223		3,313
1180	For depths over 8', add		12	2	V.L.F.	305	76.50	28		409.50
1190	6' I.D., 4' deep		2	12	Ea.	2,100	460	167		2,727
1200	6' deep		1.50	16		2,525	615	223		3,363
1210	8' deep		1	24	▼	3,100	920	335		4,355
1220	For depths over 8', add		8	3	V.L.F.	360	115	42		517
1250	Slab tops, precast, 8" thick									
1300	4' diameter manhole	B-6	8	3	Ea.	272	115	42		429
1400	5' diameter manhole		7.50	3.200		425	123	44.50		592.50
1500	6' diameter manhole		7	3.429		635	131	47.50		813.50
3800	Steps, heavyweight cast iron, 7" x 9"	1 Bric	40	.200		18.05	8.80			26.85
3900	8" x 9"		40	.200		21.50	8.80			30.30
3928	12" x 10-1/2"		40	.200		25.50	8.80			34.30
4000	Standard sizes, galvanized steel		40	.200		24	8.80			32.80
4100	Aluminum		40	.200	▼	24	8.80			32.80

51 Natural-Gas Distribution

13 - Natural-Gas Piping

13.10 Piping, Gas Service and Distribution, P.E.		Daily	Labor-			2012 Bare Costs			Total
PIPING, GAS SERVICE AND DISTRIBUTION, POLYETHYLENE		Crew	Output	Hours	Unit	Material	Labor	Equipment	Incl O&P
Not including excavation or backfill									
60 psi coils, compression coupling @ 100', 1/2" diameter, SDR 11	B-20A	608	.053	L.F.		.91	2.24		3.15
1" diameter, SDR 11		544	.059			2.03	2.51		4.54
1-1/4" diameter, SDR 11		544	.059			2.04	2.51		4.55
2" diameter, SDR 11		488	.066			3.36	2.80		6.16
3" diameter, SDR 11		408	.078			4.37	3.34		7.71
60 PSI 40' joints with coupling, 3" diameter, SDR 11	B-21A	408	.098			4.37	4.28	1.10	9.75
4" diameter, SDR 11		352	.114			9.15	4.96	1.27	15.38
6" diameter, SDR 11		328	.122			26.50	5.30	1.37	33.17
8" diameter, SDR 11		272	.147			32.50	6.40	1.65	40.55

52 Liquid Fuel Distribution

16 - Gasoline Distribution

16.13 Gasoline Piping

GASOLINE PIPING									
Primary containment pipe, fiberglass-reinforced									
Plastic pipe 15' & 30' lengths									
2" diameter	Q-6	425	.056	L.F.		5.60	2.94		8.54
3" diameter		400	.060			8.60	3.12		11.72
4" diameter		375	.064			11.25	3.33		14.58
Fittings									
Elbows, 90° & 45°, bell-ends, 2"	Q-6	24	1	Eq.		41	52		93
3" diameter		22	1.091			51.50	56.50		108
4" diameter		20	1.200			66	62.50		128.50
Tees, bell ends, 2"		21	1.143			57	59.50		116.50
3" diameter		18	1.333			60.50	69.50		130
4" diameter		15	1.600			79.50	83		162.50
Flanges bell ends, 2"		24	1			31.50	52		83.50
3" diameter		22	1.091			37	56.50		93.50
4" diameter		20	1.200			42.50	62.50		105
Sleeve couplings, 2"		21	1.143			13.50	59.50		73
3" diameter		18	1.333			17.10	69.50		86.60
4" diameter		15	1.600			24.50	83		107.50
Threaded adapters 2"		21	1.143			17.10	59.50		76.60
3" diameter		18	1.333			32.50	69.50		102
4" diameter		15	1.600			36	83		119
Reducers, 2"		27	.889			26	46		72
3" diameter		22	1.091			26	56.50		82.50
4" diameter		20	1.200			35	62.50		97.50
Gas station product line for secondary containment (double wall)									
Fiberglass reinforced plastic pipe 25' lengths									
Pipe, plain end, 3" diameter	Q-6	375	.064	L.F.		6.75	3.33		10.08
4" diameter		350	.069			7.90	3.56		11.46
5" diameter		325	.074			13.80	3.84		17.64
6" diameter		300	.080			14.20	4.16		18.36
Fittings									
Elbows, 90° & 45°, 3" diameter	Q-6	18	1.333	Eq.		56.50	69.50		126
4" diameter		16	1.500			105	78		183
5" diameter		14	1.714			280	89		369
6" diameter		12	2			320	104		424

33 52 Liquid Fuel Distribution

33 52 16 – Gasoline Distribution

33 52 16.13 Gasoline Piping		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total
							Labor	Equipment		
1270	Tees, 3" diameter	Q-6	15	1.600	Eq.	86	83		169	
1280	4" diameter		12	2		131	104		235	
1290	5" diameter		9	2.667		300	139		439	
1300	6" diameter		6	4		365	208		573	
1310	Couplings, 3" diameter		18	1.333		55	69.50		124.50	
1320	4" diameter		16	1.500		115	78		193	
1330	5" diameter		14	1.714		250	89		339	
1340	6" diameter		12	2		310	104		414	
1350	Cross-over nipples, 3" diameter		18	1.333		10	69.50		79.50	
1360	4" diameter		16	1.500		12	78		90	
1370	5" diameter		14	1.714		15	89		104	
1380	6" diameter		12	2		18	104		122	
1400	Telescoping, reducers, concentric 4" x 3"		18	1.333		45	69.50		114.50	
1410	5" x 4"		17	1.412		90	73.50		163.50	
1420	6" x 5"		16	1.500		220	78		298	

33 71 Electrical Utility Transmission and Distribution

33 71 16 – Electrical Utility Poles

33 71 16.33 Wood Electrical Utility Poles

WOOD ELECTRICAL UTILITY POLES										
0010	Excludes excavation, backfill and cast-in-place concrete									
0011	Electric & tel sitework, 20' high, treated wd., see Section 26 56 13.10	R-3	3.10	6.452	Eq.	267	330	42.50	639.50	
6200	25' high		2.90	6.897		325	350	45.50	720.50	
6600	30' high		2.60	7.692		425	390	51	866	
6800	35' high		2.40	8.333		525	425	55	1,005	
7000	40' high		2.30	8.696		745	445	57.50	1,247.50	
7200	45' high		1.70	11.765		890	600	78	1,568	
7400	Cross arms with hardware & insulators									
7600	4' long	1 Elec	2.50	3.200	Eq.	143	165		308	
7800	5' long		2.40	3.333		166	172		338	
8000	6' long		2.20	3.636		190	187		377	

33 71 19 – Electrical Underground Ducts and Manholes

33 71 19.17 Electric and Telephone Underground

ELECTRIC AND TELEPHONE UNDERGROUND										
0010	Not including excavation									
0011	backfill and cast in place concrete									
0200	Hand holes, precast concrete, with concrete cover									
0600	2' x 2' x 3' deep	R-3	2.40	8.333	Eq.	395	425	55	875	
0800	3' x 3' x 3' deep		1.90	10.526		510	535	69.50	1,114.50	
1000	4' x 4' x 4' deep		1.40	14.286		1,200	730	94.50	2,024.50	
1200	Manholes, precast with iron racks & pulling irons, C.I. frame									
1400	and cover, 4' x 6' x 7' deep	B-13	2	28	Eq.	4,000	1,075	350	5,425	
1600	6' x 8' x 7' deep		1.90	29.474		4,500	1,125	365	5,990	
1800	6' x 10' x 7' deep		1.80	31.111		5,050	1,175	385	6,610	
4200	Underground duct, banks ready for concrete fill, min. of 7.5"									
4400	between conduits, center to center									
4580	PVC, type EB, 1 @ 2" diameter	2 Elec	480	.033	L.F.	.37	1.72		2.09	
4600	2 @ 2" diameter		240	.067		.74	3.44		4.18	
4800	4 @ 2" diameter		120	.133		1.48	6.85		8.33	
5000	2 @ 3" diameter		200	.080		1.03	4.12		5.15	

71 Electrical Utility Transmission and Distribution

19 – Electrical Underground Ducts and Manholes

19.17 Electric and Telephone Underground		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
4 @ 3" diameter	2 Elec	100	.160	L.F.	2.05	8.25			10.30	14.60
2 @ 4" diameter		160	.100		1.51	5.15			6.66	9.35
4 @ 4" diameter		80	.200		3.02	10.30			13.32	18.75
6 @ 4" diameter		54	.296		4.54	15.25			19.79	28
Rigid galvanized steel, 2 @ 2" diameter		180	.089		15.15	4.58			19.73	23.50
4 @ 2" diameter		90	.178		30.50	9.15			39.65	47
2 @ 3" diameter		100	.160		38	8.25			46.25	54
4 @ 3" diameter		50	.320		75.50	16.50			92	108
2 @ 4" diameter		70	.229		55	11.80			66.80	78
4 @ 4" diameter		34	.471		110	24.50			134.50	158
6 @ 4" diameter		22	.727		164	37.50			201.50	237

81 Communications Structures

13 – Communications Transmission Towers

13.10 Radio Towers

RADIO TOWERS		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	Total Ind O&P
Guyed, 50' H, 40 lb. sec., 70 MPH basic wind spd.	2 Sswk	1	16	Ea.	2,900	790			3,690	4,575
Wind load 90 MPH basic wind speed	"	1	16		3,450	790			4,240	5,175
190' high, 40 lb. section, wind load 70 MPH basic wind speed	K-2	.33	72.727		9,000	3,275	800		13,075	16,400
200' high, 70 lb. section, wind load 90 MPH basic wind speed		.33	72.727		15,000	3,275	800		19,075	23,000
300' high, 70 lb. section, wind load 70 MPH basic wind speed		.20	120		24,000	5,400	1,325		30,725	37,100
270' high, 90 lb. section, wind load 90 MPH basic wind speed		.20	120		26,000	5,400	1,325		32,725	39,300
400' high, 100 lb. section, wind load 70 MPH basic wind speed		.14	171		36,000	7,725	1,900		45,625	55,000
Self-supporting, 60' high, wind load 70 MPH basic wind speed		.80	30		4,500	1,350	330		6,180	7,650
60' high, wind load 90 MPH basic wind speed		.45	53.333		5,500	2,400	590		8,490	10,800
120' high, wind load 70 MPH basic wind speed		.40	60		10,500	2,700	660		13,860	17,000
190' high, wind load 90 MPH basic wind speed		.20	120		29,500	5,400	1,325		36,225	43,200
For states west of Rocky Mountains, add for shipping					10%					

Division Notes

[illegible]

Estimating Tips

4 1 00 Rail Tracks

This subdivision includes items that may involve either repair of existing, or construction of new, railroad tracks. Additional repair work, such as the additional earthwork, would be found in Division 31. Additional work on construction siding and tracks are found in Subdivision 32 Maintenance of railroads is found under 34 01 23 Operation and Maintenance of Railways.

34 41 13 Traffic Signals

This subdivision includes traffic signal systems. Other traffic control devices such as traffic signs are found in Subdivision 10 14 53 Traffic Signage.

34 71 13 Vehicle Barriers

This subdivision includes security vehicle barriers, guide and guard rails, crash barriers, and delineators. The actual maintenance and construction of concrete and asphalt pavement is found in Division 32.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

Division 34 - Transportation

34 01 Operation and Maintenance of Transportation

34 01 23 - Operation and Maintenance of Railways

34 01 23.51 Maintenance of Railroads		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total
0010 MAINTENANCE OF RAILROADS							Labor	Equipment	
0400	Resurface and realign existing track	B-14	200	.240	L.F.		8.90	1.67	10.57
0600	For crushed stone ballast, add	"	500	.096	"	11.95	3.56	.67	16.18

34 11 Rail Tracks

34 11 13 - Track Rails

34 11 13.23 Heavy Rail Track

0010	HEAVY RAIL TRACK	R347216-10							
1000	Rail, 100 lb. prime grade				L.F.	31.50			31.50
1500	Relay rail				"	15.85			15.85

34 11 33 - Track Cross Ties

34 11 33.13 Concrete Track Cross Ties

0010	CONCRETE TRACK CROSS TIES								
1400	Ties, concrete, 8'-6" long, 30" O.C.	B-14	80	.600	Ea.	157	22	4.18	183.18

34 11 33.16 Timber Track Cross Ties

0010	TIMBER TRACK CROSS TIES								
1600	Wood, pressure treated, 6" x 8" x 8'-6", C.L. lats	B-14	90	.533	Ea.	47	19.75	3.71	70.46
1700	L.C.L. lats		90	.533		49.50	19.75	3.71	72.96
1900	Heavy duty, 7" x 9" x 8'-6", C.L. lats		70	.686		52	25.50	4.77	82.27
2000	L.C.L. lats	▼	70	.686	▼	52	25.50	4.77	82.27

34 11 33.17 Timber Switch Ties

0010	TIMBER SWITCH TIES								
1200	Switch timber, for a #8 switch, pressure treated	B-14	3.70	12.973	M.B.F.	2,825	480	90.50	3,395.50
1300	Complete set of timbers, 3.7 M.B.F. for #8 switch	"	1	48	Total	10,900	1,775	335	13,010

34 11 93 - Track Appurtenances and Accessories

34 11 93.50 Track Accessories

0010	TRACK ACCESSORIES								
0020	Car bumpers, test	B-14	2	24	Ea.	3,550	890	167	4,607
0100	Heavy duty	R347216-20	2	24		6,700	890	167	7,757
0200	Derails hand throw (sliding)		10	4.800		1,100	178	33.50	1,311.50
0300	Hand throw with standard timbers, open stand & target		8	6	▼	1,200	222	42	1,464
2400	Wheel stops, fixed		18	2.667	Pr.	870	99	18.55	987.55
2450	Hinged	▼	14	3.429	"	1,175	127	24	1,326

34 11 93.60 Track Material

0010	TRACK MATERIAL								
0020	Track bolts				Ea.	3.63			3.63
0100	Joint bars				Pr.	84			84
0200	Spikes				Ea.	1.20			1.20
0300	Tie plates				"	14.05			14.05

41 Roadway Signaling and Control Equipment

41.13 - Traffic Signals

3.10 Traffic Signals Systems					Daily Crew Output	Labor- Hours	Unit	2012 Bare Costs			Total Ind O&P		
TRAFFIC SIGNALS SYSTEMS					Material	Labor	Equipment	Total					
Mid block pedestrian crosswalk with pushbutton and most arms					R-11	.30	186	Total	85,000	9,100	2,650	96,750	110,000
Traffic signals, school flashing system, solar powered, remote controlled					"	1	56	Signal	19,600	2,725	795	23,120	26,600
Intersection traffic signals, LED, mast, programmable, no lone control													
Includes all labor, material and equip. for complete installation					R-11	1	56	Signal	195,000	2,725	795	198,520	219,500
Intersection traffic signals, LED, mast, programmable, R/L lone control													
Includes all labor, material and equip. for complete installation					R-11	1	56	Signal	252,000	2,725	795	255,520	282,000
Add protective/permissive left turns to existing traffic light													
Includes all labor, material and equip. for complete installation					R-11	1	56	Signal	79,000	2,725	795	82,520	92,000
Replace existing light heads with LED heads wire hung													
Includes all labor, material and equip. for complete installation					R-11	1	56	Signal	53,000	2,725	795	56,520	63,500
Replace existing light heads with LED heads mast arm hung													
Includes all labor, material and equip. for complete installation					R-11	1	56	Signal	95,000	2,725	795	98,520	109,500

41 Roadway Construction

41.13 - Vehicle Barriers

41.13.17 Security Vehicle Barriers

SECURITY VEHICLE BARRIERS									
Security planters excludes filling material									
Concrete security planter, exposed aggregate 36" dia x 30" high	B-11M	8	2	Eq.	455	81.50	45.50	582	675
48" dia x 36" high		8	2		565	81.50	45.50	692	795
53" dia x 18" high		8	2		495	81.50	45.50	622	720
72" dia x 18" high with seats		8	2		1,075	81.50	45.50	1,202	1,350
84" dia x 36" high		8	2		1,275	81.50	45.50	1,402	1,575
36" x 36" x 24" high square		8	2		385	81.50	45.50	512	600
36" x 36" x 30" high square		8	2		450	81.50	45.50	577	670
48" L x 24" W x 30" H rectangle		8	2		445	81.50	45.50	572	665
72" L x 24" W x 30" H rectangle		8	2		550	81.50	45.50	677	780
96" L x 24" W x 30" H rectangle		8	2		680	81.50	45.50	807	925
Decorative geometric concrete barrier, 96" L x 24" W x 36" H		8	2		640	81.50	45.50	767	880
Concrete security planter, filling with washed sand or gravel <1 C.Y.		8	2		34.50	81.50	45.50	161.50	212
2 C.Y. or less		6	2.667		69.50	109	60.50	239	310
Jersey concrete barrier, 10' L x 2' by 0.5' W x 30" H	B-21B	16	2.500		385	95	38.50	518.50	615
10 or more same site		24	1.667		385	63.50	25.50	474	550
10' L x 2' by 0.5' W x 32" H		16	2.500		415	95	38.50	548.50	645
10 or more same site		24	1.667		415	63.50	25.50	504	580
20' L x 2' by 0.5' W x 30" H		12	3.333		580	127	51	758	890
10 or more same site		18	2.222		580	84.50	34	698.50	805
20' L x 2' by 0.5' W x 32" H		12	3.333		710	127	51	888	1,025
10 or more same site		18	2.222		710	84.50	34	828.50	945
GFRC decorative security barrier per 10 feet section including concrete		4	10		2,200	380	153	2,733	3,175
Per 12 feet section including concrete		4	10		2,650	380	153	3,183	3,675
GFRC decorative security barrier will stop 30 MPH, 4000 lb. vehicle									
High security barrier base prep per 12 feet section on bore ground	B-11C	4	4	Eq.	28.50	163	83.50	275	375
GFRC barrier base prep does not include haul away of excavated matl									
GFRC decorative high security barrier per 12 feet section w/concrete	B-21B	3	13.333	Eq.	5,350	505	204	6,059	6,875
GFRC decorative high security barrier will stop 50 MPH, 15000 lb. vehicle									
GFRC decorative impaler security barrier per 10 feet section w/prep	B-6	4	6	Eq.	2,075	230	83.50	2,388.50	2,725
Per 12 feet section w/prep	"	4	6	"	2,475	230	83.50	2,788.50	3,175
Impaler barrier should stop 50 MPH, 15000 lb. vehicle w/some penetr									
Pipe ballards, steel, concrete filled/painted, 8' L x 4' D hole, 8" diam.	B-6	10	2.400	Eq.	875	92	33.50	1,000.50	1,150

34 71 Roadway Construction

34 71 13 - Vehicle Barriers

34 71 13.17 Security Vehicle Barriers		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Unit
							Labor	Equipment		
2710	Schedule 80 concrete ballards will stop 4000 lb. vehicle @ 30 MPH									
2800	GFRC decorative jersey barrier cover per 10 feet section excludes soil	B-6	8	3	Ea.	880	115	42	1,037	1,200
2900	Per 12 feet section excludes soil		8	3		1,050	115	42	1,207	1,300
3000	GFRC decorative 8" diameter bollard cover		12	2		470	76.50	28	574.50	1,400
3100	GFRC decorative barrier face 10 foot section excludes earth backing	▼	10	2.400	▼	900	92	33.50	1,025.50	1,100
3200	Drop arm crash barrier, 15000 lb. vehicle @ 50 MPH									
3205	Includes all material, labor for complete installation									
3210	12' width				Ea.				62,000	68,000
3310	24' width								83,000	91,000
3410	Wedge crash barrier, 10' width								98,000	108,000
3510	12.5' width								109,000	120,000
3520	15' width								121,000	133,000
3610	Sliding crash barrier, 12' width								175,000	192,000
3710	Sliding roller crash barrier, 20' width								194,000	213,000
3810	Sliding cantilever crash barrier, 20' width				▼				194,000	213,000
3890	Note: Raised bollard crash barriers should be used w/tire shredders									
3910	Raised bollard crash barrier, 10' width				Ea.				38,000	42,000
4010	12' width								44,000	48,000
4110	Raised bollard crash barrier, 10' width, solar powered								46,000	51,000
4210	12' width								51,000	56,000
4310	In ground tire shredder, 16' width				▼				43,000	47,000

34 71 13.26 Vehicle Guide Rails

VEHICLE GUIDE RAILS										
0010										
0012	Corrugated stl. galv. stl posts, 6'-3" O.C.	B-80	850	.038	L.F.	20	1.42	.79	22.21	7
0200	End sections, galvanized, flared		50	.640	Ea.	88	24	13.35	125.35	7
0300	Wrap around end		50	.640	"	128	24	13.35	165.35	8
0400	Timber guide rail, 4" x 8" with 6" x 8" wood posts, treated		960	.033	L.F.	10.35	1.26	.70	12.31	1
0600	Cable guide rail, 3 at 3/4" cables, steel posts, single face		900	.036		9.90	1.35	.74	11.99	1
0700	Wood posts		950	.034		11.85	1.27	.70	13.82	1
0900	Guide rail, steel box beam, 6" x 6"		120	.267		31	10.10	5.55	46.65	5
1100	Median barrier, steel box beam, 6" x 8"	▼	215	.149		41	5.65	3.11	49.76	5
1400	Resilient guide fence and light shield, 6' high	B-2	130	.308	▼	34	10.90		44.90	5
1500	Concrete posts, individual, 6'-5", triangular	B-80	110	.291	Ea.	64	11	6.05	81.05	5
1550	Square	"	110	.291	"	70.50	11	6.05	87.55	10
2000	Median, precast concrete, 3'-6" high, 2' wide, single face	B-29	380	.147	L.F.	49.50	5.60	2.22	57.32	6
2200	Double face	"	340	.165	"	57	6.25	2.48	65.73	7
2400	Speed bumps, thermoplastic, 10-1/2" x 2-1/4" x 48" long	B-2	120	.333	Ea.	138	11.85		149.85	10
3030	Impact barrier, UTMCD, barrel type	B-16	30	1.067	"	470	38	19.50	527.50	50

34 71 19 - Vehicle Delineators

34 71 19.13 Fixed Vehicle Delineators											
FIXED VEHICLE DELINEATORS											
0010											
0020	Crash barriers										
0100	Traffic channelizing pavement markers, layout only	A-7	2000	.012	Ea.		.58	.04	.62		
0110	13" x 7-1/2" x 2-1/2" high, non-plowable install	2 Clab	96	.167		22.50	5.85		28.35		
0200	8" x 8" x 3-1/4" high, non-plowable, install		96	.167		21	5.85		26.85		
0230	4" x 4" x 3-1/4" high, non-plowable, install	▼	120	.133		1.22	4.68		5.90		
0240	9-1/4" x 5-7/8" x 1-1/4" high, plowable, concrete pvmt.	A-2A	70	.343		19	11.95	5.15	36.10		
0250	9-1/4" x 5-7/8" x 1-1/4" high, plowable, asphalt pvmt.	"	120	.200		4	6.95	2.99	13.94		
0300	Barrier and curb delineators, reflectorized, 2" x 4"	2 Clab	150	.107		2.22	3.74		5.96		
0310	3" x 5"	"	150	.107	▼	4.25	3.74		7.99		
0500	Rumble strip, polycarbonate										
0510	24" x 3-1/2" x 1-1/2" high	2 Clab	50	.320	Ea.	7.85	11.25		19.10		

72 Railway Construction

2 16 – Railway Siding

		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
16.50	Railroad Sidings									
	RAILROAD SIDINGS	R347216-10								
	Siding, yard spur, level grade									
	100 lb. new rail	B-14	57	842	L.F.	119	31	5.85	155.85	185
	Steel ties in concrete, incl. fasteners & plates									
	100 lb. new rail	B-14	22	2,182	L.F.	166	81	15.20	262.20	325

16.60 Railroad Turnouts

	RAILROAD TURNOUTS									
	Turnout, #8 complete, w/roils, plates, bars, frog, switch point, timbers, and bollost to 6" below bottom of ties									
	90 lb. roils	B-13	.25	224	Eo.	36,400	8,525	2,800	47,725	56,000
	90 lb. relay roils		.25	224		24,500	8,525	2,800	35,825	43,000
	100 lb. roils		.25	224		40,600	8,525	2,800	51,925	60,500
	100 lb. relay roils		.25	224		27,300	8,525	2,800	38,625	46,100
	110 lb. roils		.25	224		44,700	8,525	2,800	56,025	65,000
	110 lb. relay roils		.25	224		30,100	8,525	2,800	41,425	49,200
	115 lb. roils		.25	224		49,000	8,525	2,800	60,325	70,000
	115 lb. relay roils		.25	224		32,900	8,525	2,800	44,225	52,500
	132 lb. roils		.25	224		56,000	8,525	2,800	67,325	77,500
	132 lb. relay roils	▼	.25	224	▼	37,100	8,525	2,800	48,425	57,000

Division Notes

[illegible]

Estimating Tips

35 01 16 Hydraulic

Gates

This subdivision includes various types of gates that are commonly used in waterway and canal construction. Various earthwork and structural support is shown in Division 31, and concrete work in Division 3.

35 02 23 Dredging

This subdivision includes barge and shore dredging systems for rivers, canals, and channels.

35 01 00 Shoreline Protection

This subdivision includes breakwaters, bulkheads, and revetments for ocean and river shorelines. Additional earthwork may be required from Division 31, and concrete work from Division 3.

35 41 00 Levees

Information on levee construction, including estimated cost of clay cone material.

35 49 00 Waterway Structures

This subdivision includes breakwaters and bulkheads for canals.

35 51 00 Floating Construction

This section includes floating piers, docks, and dock accessories. Fixed Pier Timber Construction is found in 06 13 33. Driven piles are found in Division 31, as well as sheet piling, cofferdams, and riprap.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

Division 35 - Waterway and Marine

35 20 Waterway and Marine Construction and Equipment

35 20 23 – Dredging

35 20 23.13 Mechanical Dredging		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Tak Incl O
MECHANICAL DREDGING							Labor	Equipment		
0010	Dredging mobilization and demobilization, add to below, minimum	B-8	.53	120	Total		4,725	5,600	10,325	13.40
0100	Maximum	"	.10	640	"		25,000	29,700	54,700	78.50
0300	Barge mounted clamshell excavation into scows									
0310	Dumped 20 miles at sea, minimum	B-57	310	.155	B.C.Y.		6.20	5.55	11.75	
0400	Maximum	"	213	.225	"		9.05	8.05	17.10	
0500	Barge mounted dragline or clamshell, hopper dumped, pumped 1000' to shore dump, minimum	B-57	340	.141	B.C.Y.		5.65	5.05	10.70	
0510										
0525	All pumping uses 2000 gallons of water per cubic yard									
0600	Maximum	B-57	243	.198	B.C.Y.		7.95	7.05	15	

35 20 23.23 Hydraulic Dredging

35 20 23.23 HYDRAULIC DREDGING		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Tak Incl O
HYDRAULIC DREDGING							Labor	Equipment		
1000	Hydraulic method, pumped 1000' to shore dump, minimum	B-57	460	.104	B.C.Y.		4.19	3.74	7.93	
1100	Maximum		310	.155			6.20	5.55	11.75	
1400	Into scows dumped 20 miles, minimum		425	.113			4.54	4.04	8.58	
1500	Maximum	▼	243	.198			7.95	7.05	15	
1600	For inland rivers and canals in South, deduct				▼				30%	

35 51 Floating Construction

35 51 13 – Floating Piers

35 51 13.23 Floating Wood Piers

35 51 13.23 FLOATING WOOD PIERS		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Tak Incl O
FLOATING WOOD PIERS							Labor	Equipment		
0010	Polyethylene encased polystyrene, no pilings included	F-3	330	.121	S.F.	40.50	5.45	1.85	47.80	
0200	Pile supported, shore constructed, bare, 3" decking		130	.308		27.50	13.80	4.71	46.01	
0250	4" decking		120	.333		28	14.95	5.10	48.05	
0400	Floating, small boat, prefab, no shore facilities, minimum		250	.160		14	7.15	2.45	23.60	
0500	Maximum		150	.267	▼	45.50	11.95	4.08	61.53	
0700	Per slip, minimum (180 S.F. each)		1.59	25.157	Ea.	2,925	1,125	385	4,435	5.3
0800	Maximum	▼	1.40	28.571	"	9,400	1,275	435	11,110	12.8

Estimating Tips

Items such as conveyors, material handling cranes and hoists as well as other items listed in this division, require experienced installers. The general contractor may not have any idea as to who will perform the installation or when it will be completed. Long lead times are often required for these products, requiring early decisions in purchasing and scheduling necessary.

The installation of this type of equipment may require the embedment of mounting hardware during construction of floors, structural walls, or interior walls/partitions. Electrical connections will require coordination with the electrical contractor.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

Division 41 - Mat'l. Processing and Handling Equip.

41 21 Conveyors

41 21 23 - Piece Material Conveyors

41 21 23.16 Container Piece Material Conveyors					Daily Crew	Output	Labor- Hours	Unit	Material	2012 Bare Costs Labor	Equipment	Total	
CONTAINER PIECE MATERIAL CONVEYORS													
0010	Gravity fed, 2" rollers, 3" O.C.												
0020	10' sections with 2 supports, 600 lb. capacity, 18" wide												
0050	24" wide												
0100	1400 lb. capacity, 18" wide												
0150	24" wide												
0200	Horizontal belt, center drive and takeup, 60 fpm												
0350	16" belt, 26.5' length												
0400	24" belt, 41.5' length												
0450	61.5' length												
0500	Inclined belt, 10' rise with horizontal loader and												
0600	End idler assembly, 27.5' length, 18" belt												
0620	24" belt												
0700	Monorail, overhead, manual, channel type												
3600	125 lb. per L.F.												
3700	500 lb. per L.F.												
3900	Trolleys for above, 2 wheel, 125 lb. capacity												
4000	4 wheel, 250 lb. capacity												
4200	8 wheel, 1,000 lb. capacity												
4300													

41 22 Cranes and Hoists

41 22 13 - Cranes

41 22 13.10 Crane Rail

0010	CRANE RAIL												
0020	Box beam bridge, no equipment included												
0200	Running track only, 104 lb. per yard												

41 22 13.13 Bridge Cranes

0010	BRIDGE CRANES												
0100	1 girder, 20' span, 3 ton												
0125	5 ton												
0150	7.5 ton												
0175	10 ton												
0200	15 ton												
0225	30' span, 3 ton												
0250	5 ton												
0275	7.5 ton												
0300	10 ton												
0325	15 ton												
0350	2 girder, 40' span, 3 ton												
0375	5 ton												
0400	7.5 ton												
0425	10 ton												
0450	15 ton												
0475	25 ton												
0500	50' span, 3 ton												
0525	5 ton												
0550	7.5 ton												
0575	10 ton												
0600	15 ton												
0625	25 ton												

22 Cranes and Hoists

23 - Hoists

23.10 Material Handling				Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P	
MATERIAL HANDLING, cranes, hoists and lifts									Labor	Equipment			
500	Cranes, portable hydraulic, floor type, 2,000 lb. capacity						Ea.	2,475				2,475	2,700
500	4,000 lb. capacity							4,150				4,150	4,575
300	Movable gantry type, 12' to 15' range, 2,000 lb. capacity							3,600				3,600	3,975
300	6,000 lb. capacity							5,225				5,225	5,750
100	Hoists, electric overhead, chain, hook hung, 15' lift, 1 ton cap.							2,325				2,325	2,575
200	3 ton capacity							2,725				2,725	3,000
500	5 ton capacity						▼	6,625				6,625	7,275
600	For hand-pushed trolley, add							15%					
700	For geared trolley, add							30%					
800	For motor trolley, add							75%					
000	For lifts over 15', 1 ton, add						L.F.	23.50				23.50	25.50
100	5 ton, add						"	52				52	57
300	Lifts, scissor type, portable, electric, 36" high, 2,000 lb.						Ea.	4,275				4,275	4,700
400	48" high, 4,000 lb.						"	4,675				4,675	5,150

Division Notes

[illegible]

Estimating Tips

Selection involves equipment and instruction costs for air and odor pollution control systems.

These systems may be regulated and care must be taken that the complete systems are estimated. For example, air pollution equipment may include and air-entrained particles have to be collected. The collection systems could be noisy, requiring silencers to reduce noise pollution, and the collected pollutants have to be disposed of to prevent solid pollution.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

44 11 Particulate Control Equipment

44 11 16 – Fugitive Dust Barrier Systems

44 11 16.10 Dust Collection Systems		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Unit
DUST COLLECTION SYSTEMS Commercial/Industrial							Labor	Equipment		
0010	Central vacuum units									
0120	Includes stand, filters and motorized shaker									
0130	500 CFM, 10" inlet, 2 HP	Q-20	2.40	8.333	Ea.	3,900	400		4,300	4.9
0200	1000 CFM, 10" inlet, 3 HP		2.20	9.091		4,100	435		4,535	5.1
0220	1500 CFM, 10" inlet, 5 HP		2	10		4,325	480		4,805	5.4
0240	3000 CFM, 13" inlet, 10 HP		1.50	13.333		12,200	640		12,840	14.4
0260	5000 CFM, 16" inlet, 2 @ 10 HP		1	20		12,900	955		13,855	15.7
0280	Vacuum tubing, galvanized									
1000	2-1/8" OD, 16 ga.	Q-9	440	.036	L.F.	2.80	1.71		4.51	
1100	2-1/2" OD, 16 ga.		420	.038		3.23	1.79		5.02	
1110	3" OD, 16 ga.		400	.040		3.69	1.88		5.57	
1120	3-1/2" OD, 16 ga.		380	.042		5.35	1.98		7.33	
1130	4" OD, 16 ga.		360	.044		6	2.09		8.09	
1140	5" OD, 14 ga.		320	.050		10.75	2.35		13.10	
1150	6" OD, 14 ga.		280	.057		12.45	2.68		15.13	
1160	8" OD, 14 ga.		200	.080		18.75	3.75		22.50	
1170	10" OD, 12 ga.		160	.100		29.50	4.69		34.19	
1180	12" OD, 12 ga.		120	.133		32.50	6.25		38.75	
1190	14" OD, 12 ga.		80	.200		39.50	9.40		48.90	
1200	Hose, flexible wire reinforced rubber									
1940	3" dia.	Q-9	400	.040	L.F.	8.20	1.88		10.08	
1956	4" dia.		360	.044		9.50	2.09		11.59	
1960	5" dia.		320	.050		11.90	2.35		14.25	
1970	6" dia.		280	.057		12.90	2.68		15.58	
1980	90° Elbow, slip fit									
2000	2-1/8" dia.	Q-9	70	.229	Ea.	11.70	10.75		22.45	
2110	2-1/2" dia.		65	.246		16.35	11.55		27.90	
2120	3" dia.		60	.267		22	12.50		34.50	
2130	3-1/2" dia.		55	.291		27.50	13.65		41.15	
2140	4" dia.		50	.320		34	15		49	
2150	5" dia.		45	.356		64.50	16.70		81.20	
2160	6" dia.		40	.400		89	18.75		107.75	
2170	8" dia.		30	.533		169	25		194	
2180	45° Elbow, slip fit									
2400	2-1/8" dia.	Q-9	70	.229	Ea.	10.25	10.75		21	
2410	2-1/2" dia.		65	.246		15.10	11.55		26.65	
2420	3" dia.		60	.267		18.20	12.50		30.70	
2430	3-1/2" dia.		55	.291		23	13.65		36.65	
2440	4" dia.		50	.320		29.50	15		44.50	
2450	5" dia.		45	.356		50	16.70		66.70	
2460	6" dia.		40	.400		68	18.75		86.75	
2470	8" dia.		35	.457		133	21.50		154.50	
2480	90° Tee, slip fit thru 6" dia.									
2800	2-1/8" dia.	Q-9	42	.381	Ea.	23	17.90		40.90	
2810	2-1/2" dia.		39	.410		30	19.25		49.25	
2820	3" dia.		36	.444		39.50	21		60.50	
2830	3-1/2" dia.		33	.485		50	23		73	
2840	4" dia.		30	.533		72	25		97	
2850	5" dia.		27	.593		137	28		165	
2860	6" dia.		24	.667		186	31.50		217.50	
2870	8" dia., butt end					395			395	
2880	10" dia., butt end					715			715	
2890										

11 Particulate Control Equipment

1 16 – Fugitive Dust Barrier Systems

16.10 Dust Collection Systems				Crew	Daily Output	Labor- Hours	Unit	Material	2012 Bare Costs		Total	Total Incl O&P
									Labor	Equipment		
16100	12" dia., butt end						Ea.	715			715	785
16110	14" dia., butt end							1,300			1,300	1,425
16120	6" x 4" dia., butt end							114			114	125
16130	8" x 4" dia., butt end							215			215	237
16140	10" x 4" dia., butt end							282			282	310
16150	12" x 4" dia., butt end							325			325	355
16160	90° Elbow, butt end segmented											
16170	8" dia., butt end, segmented						Ea.	169			169	186
16180	10" dia., butt end, segmented							420			420	460
16190	12" dia., butt end, segmented							530			530	585
16140	14" dia., butt end, segmented							665			665	735
16200	45° Elbow, butt end segmented											
16210	8" dia., butt end, segmented						Ea.	133			133	146
16220	10" dia., butt end, segmented							305			305	335
16230	12" dia., butt end, segmented							310			310	340
16240	14" dia., butt end, segmented							380			380	420
16400	All butt end fittings require one coupling per joint.											
16410	Labor for fitting included with couplings.											
16420	Compression coupling, galvanized, neoprene gasket											
16470	2-1/8" dia.	Q-9	44	.364	Ea.			13.55	17.05		30.60	41
16480	2-1/2" dia.		44	.364				13.55	17.05		30.60	41
16490	3" dia.		38	.421				19.55	19.75		39.30	51.50
16500	3-1/2" dia.		35	.457				22	21.50		43.50	57
16510	4" dia.		33	.485				24	23		47	61
16520	5" dia.		29	.552				27.50	26		53.50	69.50
16530	6" dia.		26	.615				27.50	29		56.50	74.50
16540	8" dia.		22	.727				57.50	34		91.50	115
16550	10" dia.		20	.800				77.50	37.50		115	142
16560	12" dia.		18	.889				96	41.50		137.50	169
16570	14" dia.		16	1				122	47		169	207
16600	Air gate valves, galvanized											
16610	2-1/8" dia.	Q-9	30	.533	Ea.			198	25		223	256
16620	2-1/2" dia.		28	.571				219	27		246	282
16630	3" dia.		26	.615				239	29		268	305
16640	4" dia.		23	.696				300	32.50		332.50	380
16650	6" dia.		18	.889				405	41.50		446.50	510

Division Notes

[illegible]

Estimating Tips

This new division contains information about water and wastewater equipment and systems, which was formerly located in Division 44. The main areas of focus are total wastewater treatment plants and components of wastewater treatment plants. In addition, there are assemblies such as aeration lagoons that are found in some applications under G30 Site Mechanical Utilities. Also included in this section are oil/water separators for wastewater treatment. New sections added for this year are for activated sludge and air diffuser systems for wastewater treatment.

Reference Numbers

Reference numbers are shown in shaded boxes at the beginning of some major classifications. These numbers refer to related items in the Reference Section. The reference information may be an estimating procedure, an alternate pricing method, or technical information.

Note: Not all subdivisions listed here necessarily appear in this publication.

Division 46 - Water & Wastewater Equipment

46 07 Packaged Water and Wastewater Treatment Equipment

46 07 53 – Packaged Wastewater Treatment Equipment

46 07 53.10 Biological Packaged Water Treatment Plants		Crew	Daily Output	Labor-Hours	Unit	Material	2012 Bare Costs		Total	Total Incl. O&M
BIOLOGICAL PACKAGED WATER TREATMENT PLANTS							Labor	Equipment		
0010	Not including fencing or external piping									
0020	Steel packaged, blown air aeration plants									
0100	1,000 GPD				Gal.				95	10
0200	5,000 GPD								57	6
0300	15,000 GPD								48	5
0400	30,000 GPD								43	5
0500	50,000 GPD								38	4
0600	100,000 GPD								33	3
0700	200,000 GPD								28	3
0800	500,000 GPD				↓				24	2
1000	Concrete, extended aeration, primary and secondary treatment									
1010	10,000 GPD				Gal.				48	5
1100	30,000 GPD								43	5
1200	50,000 GPD								38	4
1400	100,000 GPD								33	3
1500	500,000 GPD				↓				24	2
1700	Municipal wastewater treatment facility									
1720	1.0 MGD				Gal.				9.70	1
1740	1.5 MGD								9.20	1
1760	2.0 MGD								8.75	1
1780	3.0 MGD								6.80	1
1800	5.0 MGD				↓				5.80	1
2000	Holding tank system, not incl. excavation or backfill									
2010	Recirculating chemical water closet	2 Plum	4	4	Ea.	450	218		668	82
2100	For voltage converter, add	"	16	1		245	54.50		299.50	35
2200	For high level alarm, add	1 Plum	7.80	1.026	↓	140	56		196	23

46 07 53.20 Wastewater Treatment System

0010	WASTEWATER TREATMENT SYSTEM									
0020	Fiberglass, 1,000 gallon	B-21	1.29	21.705	Ea.	3,375	880	103	4,358	5,20
0100	1,500 gallon	B-21	1.03	27.184	Ea.	7,400	1,100	129	8,629	10,00

Reference Section

The reference information is in one section, making it easy to find what you need to know and easy to use the book on a daily basis. This section is visually identified by a vertical gray bar on the page edges.

In this Reference Section, we've included Equipment Rental Costs, a listing of rental and operating costs; Crew Listings, a full listing of all crews and equipment, and their costs; Historical Cost Indexes for cost comparisons over time; City Cost Indexes and Location Factors for adjusting costs to the region you are in; Reference Tables, where you will find explanations, estimating information and procedures, or technical data; Change Orders, information on pricing changes to contract documents; Square Foot Costs that allow you to make a rough estimate for the overall cost of a project; and an explanation of all the Abbreviations in the book.

Table of Contents

Construction Equipment Rental Costs

667

Crew Listings

679

Historical Cost Indexes

712

City Cost Indexes

713

Location Factors

756

Reference Tables

762

R01 General Requirements..... 762

R02 Existing Conditions 773

R03 Concrete..... 775

R04 Masonry 790

R05 Metals 792

R06 Wood, Plastics & Composites 799

R07 Thermal & Moisture Protection 799

R08 Openings 801

R09 Finishes 803

R13 Special Construction 806

R14 Conveying Equipment..... 808

Reference Tables (cont.)

R22 Plumbing 809

R23 Heating, Ventilating & Air Conditioning..... 811

R26 Electrical 814

R31 Earthwork 816

R32 Exterior Improvements..... 820

R33 Utilities..... 821

R34 Transportation 821

Change Orders 822

Square Foot Costs 827

Abbreviations 837

Section Statistics

Table 1. Summary of the data collected from the survey. The table shows the number of respondents for each age group and gender, and the total number of respondents. The data is presented in a clear and concise manner, allowing for easy comparison and analysis.

Age Group	Gender	Number of Respondents
18-24	Male	12
18-24	Female	15
25-34	Male	18
25-34	Female	22
35-44	Male	25
35-44	Female	30
45-54	Male	32
45-54	Female	38
55-64	Male	40
55-64	Female	45
65+	Male	48
65+	Female	52
Total	Male	175
Total	Female	200
Total		375

Estimating Tips

This section contains the average costs to rent and operate hundreds of pieces of construction equipment. This is useful information when estimating the time and material requirements of any particular operation in order to establish a unit or total cost. Equipment costs include not only rental, but also operating costs for equipment under normal use.

Rental Costs

Equipment rental rates are obtained from industry sources throughout North America—contractors, suppliers, dealers, manufacturers, and distributors.

Rental rates vary throughout the country, with larger cities generally having lower rates. Lease plans for new equipment are available for periods in excess of six months, with a percentage of payments applying toward purchase.

Monthly rental rates vary from 2% to 5% of the purchase price of the equipment depending on the anticipated life of the equipment and its wearing parts.

Weekly rental rates are about 1/3 the monthly rates, and daily rental rates are about 1/3 the weekly rate.

Rental rates can also be treated as reimbursement costs for contractor-owned equipment. Owned equipment costs include depreciation, loan payments, interest, taxes, insurance, storage, and major repairs.

Operating Costs

- The operating costs include parts and labor for routine servicing, such as repair and replacement of pumps, filters and worn lines. Normal operating expendables, such as fuel, lubricants, tires and electricity (where applicable), are also included.
- Extraordinary operating expendables with highly variable wear patterns, such as diamond bits and blades, are excluded. These costs can be found as material costs in the Unit Price section.
- The hourly operating costs listed do not include the operator's wages.

Equipment Cost/Day

- Any power equipment required by a crew is shown in the Crew Listings with a daily cost.
- The daily cost of equipment needed by a crew is based on dividing the weekly rental rate by 5 (number of working days in the week), and then adding the hourly operating cost times 8 (the number of hours in a day). This "Equipment Cost/Day" is shown in the far right column of the Equipment Rental pages.
- If equipment is needed for only one or two days, it is best to develop your own cost by including components for daily rent and hourly operating cost. This is important when the listed Crew for a task does not contain the equipment needed, such as a crane for lifting mechanical heating/cooling equipment up onto a roof.

- If the quantity of work is less than the crew's Daily Output shown for a Unit Price line item that includes a bare unit equipment cost, it is recommended to estimate one day's rental cost and operating cost for equipment shown in the Crew Listing for that line item.

Mobilization/Demobilization

- The cost to move construction equipment from an equipment yard or rental company to the jobsite and back again is not included in equipment rental costs listed in the Reference section, nor in the bare equipment cost of any Unit Price line item, nor in any equipment costs shown in the Crew listings.
- Mobilization (to the site) and demobilization (from the site) costs can be found in the Unit Price section.
- If a piece of equipment is already at the jobsite, it is not appropriate to utilize mobil./demob. costs again in an estimate.

01 54 | Construction Aids

01 54 33 | Equipment Rental

			UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST DAY
10	0010	CONCRETE EQUIPMENT RENTAL without operators	R015433 -10					
	0200	Bucket, concrete lightweight, 1/2 C.Y.	Ea.	.75	22	66	198	19.20
	0300	1 C.Y.		.80	26.50	80	240	22.40
	0400	1-1/2 C.Y.		1.05	36.50	110	330	30.40
	0500	2 C.Y.		1.15	43.50	130	390	35.20
	0580	8 C.Y.		5.80	255	765	2,300	196.40
	0600	Cart, concrete, self-propelled, operator walking, 10 C.F.		2.85	56.50	170	510	56.80
	0700	Operator riding, 18 C.F.		4.80	93.50	280	840	94.40
	0800	Conveyer for concrete, portable, gas, 16" wide, 26' long		11.00	122	365	1,100	161
	0900	46' long		11.40	147	440	1,325	178.20
	1000	56' long		11.50	157	470	1,400	186
	1100	Core drill, electric, 2-1/2 H.P., 1" to 8" bit diameter		1.40	59.50	179	535	41
	1150	11 H.P., 8" to 18" cores		5.40	112	335	1,000	110.20
	1200	Finisher, concrete floor, gas, riding trowel, 96" wide		10.90	145	435	1,300	174.20
	1300	Gas, walk-behind, 3 blade, 36" trowel		1.80	20	60	180	26.40
	1400	4 blade, 48" trowel		3.55	27	81	243	44.60
	1500	Float, hand-operated (Bull float) 48" wide		.08	13.65	41	123	8.65
	1570	Curb builder, 14 H.P., gas, single screw		13.10	245	735	2,200	251.00
	1590	Double screw		13.75	283	850	2,550	280
	1600	Floor grinder, concrete and terrazzo, electric, 22" path		1.84	117	350	1,050	84.70
	1700	Edger, concrete, electric, 7" path		.90	51.50	155	465	38.20
	1750	Vacuum pick-up system for floor grinders, wet/dry		1.35	81.50	245	735	59.80
	1800	Mixer, powered, mortar and concrete, gas, 6 C.F., 18 H.P.		7.60	117	350	1,050	130.80
	1900	10 C.F., 25 H.P.		9.45	142	425	1,275	180.60
	2000	16 C.F.		9.75	165	495	1,475	177
	2100	Concrete, stationary, tilt drum, 2 C.Y.		6.55	230	690	2,075	190.40
	2120	Pump, concrete, truck mounted 4" line 80' boom		23.95	875	2,620	7,850	715.60
	2140	5" line, 110' boom		31.05	1,150	3,465	10,400	941.40
	2160	Mud jack, 50 C.F. per hr.		6.55	125	375	1,125	127.40
	2180	225 C.F. per hr.		8.70	142	425	1,275	154.60
	2190	Shotcrete pump rig, 12 C.Y./hr.		13.75	220	660	1,975	242
	2200	35 C.Y./hr.		15.85	237	710	2,125	268.80
	2600	Saw, concrete, manual, gas, 18 H.P.		5.00	43.50	130	390	66
	2650	Self-propelled, gas, 30 H.P.		11.00	100	300	900	148
	2700	Vibrators, concrete, electric, 60 cycle, 2 H.P.		.30	8.65	26	78	7.60
	2800	3 H.P.		.43	11.65	35	105	10.40
	2900	Gas engine, 5 H.P.		1.70	16	48	144	23.20
	3000	8 H.P.		2.30	15	45	135	27.40
	3050	Vibrating screed, gas engine, 8 H.P.		2.81	71.50	215	645	65.90
	3120	Concrete transit mixer, 6 x 4, 250 H.P., 8 C.Y., rear discharge		52.20	570	1,705	5,125	798.60
	3200	Front discharge		61.30	695	2,090	6,275	936.40
	3300	6 x 6, 285 H.P., 12 C.Y., rear discharge		60.40	655	1,970	5,900	877.20
	3400	Front discharge	▼	63.10	705	2,115	6,350	927.80
20	0010	EARTHWORK EQUIPMENT RENTAL without operators	R015433 -10					
	0040	Aggregate spreader, push type 8' to 12' wide	Ea.	2.70	25.50	76	228	36.60
	0045	Tailgate type, 8' wide		2.55	33	99	297	40.30
	0055	Earth auger, truck-mounted, for fence & sign posts, utility poles		15.30	470	1,405	4,225	403.40
	0060	For borings and monitoring wells		41.30	645	1,940	5,825	718.40
	0070	Portable, trailer mounted		2.75	31.50	95	285	41
	0075	Truck-mounted, for caissons, water wells		89.05	2,875	8,645	25,900	2,441
	0080	Horizontal boring machine, 12" to 36" diameter, 45 H.P.		22.20	192	575	1,725	292.60
	0090	12" to 48" diameter, 65 H.P.		30.95	335	1,000	3,000	447.60
	0095	Auger, for fence posts, gas engine, hand held		.50	6	18	54	7.60
	0100	Excavator, diesel hydraulic, crawler mounted, 1/2 C.Y. capacity		18.80	370	1,105	3,325	371.40
	0120	5/8 C.Y. capacity		28.60	540	1,615	4,850	593.60
	0140	3/4 C.Y. capacity		34.90	615	1,840	5,525	647.20
	0150	1 C.Y. capacity	▼	42.70	680	2,035	6,100	748.60

1 54 33 Equipment Rental		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY	
0	1-1/2 C.Y. capacity	Ea.	51.80	910	2,730	8,200	960.40	20
0	2 C.Y. capacity		68.70	1,175	3,515	10,500	1,253	
0	2-1/2 C.Y. capacity		92.40	1,525	4,565	13,700	1,652	
5	3-1/2 C.Y. capacity		124.00	2,025	6,095	18,300	2,211	
0	4-1/2 C.Y. capacity		149.80	2,575	7,750	23,300	2,748	
5	6 C.Y. capacity		188.25	2,875	8,615	25,800	3,229	
0	7 C.Y. capacity		190.45	2,975	8,900	26,700	3,304	
2	Excavator attachments, bucket thumbs		3.05	240	720	2,150	168.40	
5	Grapples		2.75	208	625	1,875	147	
7	Hydraulic hammer for boom mounting, 5000 ft. lb.		13.70	425	1,275	3,825	364.60	
9	11,000 ft. lb.		22.35	755	2,260	6,775	630.80	
0	Gradall type, truck mounted, 3 ton @ 15' radius, 5/8 C.Y.		39.75	875	2,630	7,900	844	
0	1 C.Y. capacity		43.65	1,025	3,060	9,175	961.20	
0	Backhoe-loader, 40 to 45 H.P., 5/8 C.Y. capacity		12.90	240	720	2,150	247.20	
0	45 H.P. to 60 H.P., 3/4 C.Y. capacity		19.75	293	880	2,650	334	
0	80 H.P., 1-1/4 C.Y. capacity		21.60	320	955	2,875	363.80	
0	112 H.P., 1-1/2 C.Y. capacity		35.65	655	1,960	5,875	677.20	
2	Backhoe-loader attachment, compactor, 20,000 lb.		5.50	142	425	1,275	129	
5	Hydraulic hammer, 750 ft. lb.		3.10	95	285	855	81.80	
6	Hydraulic hammer, 1200 ft. lb.		6.05	217	650	1,950	178.40	
0	Brush chipper, gas engine, 6" cutter head, 35 H.P.		9.75	107	320	960	142	
0	Diesel engine, 12" cutter head, 130 H.P.		18.60	225	675	2,025	283.80	
0	15" cutter head, 165 H.P.		23.35	265	795	2,375	345.80	
0	Bucket, clamshell, general purpose, 3/8 C.Y.		1.20	38.50	115	345	32.60	
0	1/2 C.Y.		1.30	45	135	405	37.40	
0	3/4 C.Y.		1.45	53.50	160	480	43.60	
0	1 C.Y.		1.50	58.50	175	525	47	
0	1-1/2 C.Y.		2.45	80	240	720	67.60	
0	2 C.Y.		2.55	88.50	265	795	73.40	
0	Bucket, dragline, medium duty, 1/2 C.Y.		.70	23.50	70	210	19.60	
0	3/4 C.Y.		.70	24.50	74	222	20.40	
0	1 C.Y.		.75	26.50	80	240	22	
0	1-1/2 C.Y.		1.15	40	120	360	33.20	
0	2 C.Y.		1.25	45	135	405	37	
0	3 C.Y.		1.85	61.50	185	555	51.80	
0	Compactor, manually guided 2-drum vibratory smooth roller, 7.5 H.P.		6.70	197	590	1,775	171.60	
0	Rammer/tamper, gas, 8"		2.40	41.50	125	375	44.20	
0	15"		2.60	48.50	145	435	49.80	
0	Vibratory plate, gas, 18" plate, 3000 lb. blow		2.30	23	69	207	32.20	
0	21" plate, 5000 lb. blow		2.85	30	90	270	40.80	
0	Curb builder/extruder, 14 H.P., gas, single screw		13.10	245	735	2,200	251.80	
0	Double screw		13.75	283	850	2,550	280	
0	Disc harrow attachment, for tractor		.42	69.50	209	625	45.15	
0	Feller buncher, shearing & accumulating trees, 100 H.P.		31.15	545	1,640	4,925	577.20	
0	Grader, self-propelled, 25,000 lb.		27.85	525	1,580	4,750	538.80	
0	30,000 lb.		31.10	605	1,810	5,425	610.80	
0	40,000 lb.		48.75	1,025	3,105	9,325	1,011	
0	55,000 lb.		64.25	1,500	4,530	13,600	1,420	
0	Hammer, pavement breaker, self-propelled, diesel, 1000 to 1250 lb.		26.10	345	1,040	3,125	416.80	
0	1300 to 1500 lb.		39.15	695	2,080	6,250	729.20	
0	Pile driving hammer, steam or air, 4150 ft. lb. @ 225 bpm		10.00	480	1,435	4,300	367	
0	8750 ft. lb. @ 145 bpm		12.00	665	2,000	6,000	496	
0	15,000 ft. lb. @ 60 bpm		13.55	805	2,415	7,250	591.40	
0	24,450 ft. lb. @ 111 bpm		14.60	895	2,680	8,050	652.80	
0	Leads, 60' high for pile driving hammers up to 20,000 ft. lb.		3.15	80.50	242	725	73.60	
0	90' high for hammers over 20,000 ft. lb.		4.75	143	430	1,300	124	
0	Diesel type hammer, 22,400 ft. lb.		27.60	620	1,860	5,575	592.80	
0	41,300 ft. lb.		35.35	675	2,020	6,050	686.80	

01 54 | Construction Aids

01 54 33 Equipment Rental		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST / DAY
20	2450	141,000 ft. lb.	Ea.	52.60	1,150	3,440	1,109
	2500	Vib. elec. hammer/extractor, 200 kW diesel generator, 34 H.P.		45.65	645	1,940	753.20
	2550	80 H.P.		82.40	945	2,840	1,227
	2600	150 H.P.		155.30	1,825	5,465	2,336
	2800	Log chipper, up to 22" diameter, 600 H.P.		50.70	510	1,525	770.60
	2850	Logger, for skidding & stacking logs, 150 H.P.		46.90	815	2,450	865.20
	2860	Mulcher, diesel powered, trailer mounted		19.70	215	645	286.20
	2900	Rake, spring tooth, with tractor		15.41	335	1,007	324.70
	3000	Roller, vibratory, tandem, smooth drum, 20 H.P.		7.90	143	430	145.20
	3050	35 H.P.		9.95	247	740	227.60
	3100	Towed type vibratory compactor, smooth drum, 50 H.P.		23.60	335	1,000	388.60
	3150	Sheepsfoot, 50 H.P.		24.90	370	1,105	420.20
	3170	Landfill compactor, 220 H.P.		77.35	1,425	4,305	1,881
	3200	Pneumatic tire roller, 80 H.P.		14.15	335	1,000	313.20
	3250	120 H.P.		21.25	560	1,680	506
	3300	Sheepsfoot vibratory roller, 240 H.P.		58.10	1,050	3,180	1,363
	3320	340 H.P.		85.45	1,525	4,575	1,999
	3350	Smooth drum vibratory roller, 75 H.P.		22.10	565	1,690	514.60
	3400	125 H.P.		28.40	690	2,065	640.20
	3410	Rotary mower, brush, 60", with tractor		19.80	310	925	343.60
	3420	Rototiller, walk-behind, gas, 5 H.P.		2.23	67.50	203	58.45
	3422	8 H.P.		3.47	103	310	89.75
	3440	Scrapers, towed type, 7 C.Y. capacity		5.40	108	325	108.20
	3450	10 C.Y. capacity		6.15	150	450	139.20
	3500	15 C.Y. capacity		6.60	173	520	156.60
	3525	Self-propelled, single engine, 14 C.Y. capacity		91.35	1,350	4,030	1,537
	3550	Dual engine, 21 C.Y. capacity		131.60	1,525	4,605	1,974
	3600	31 C.Y. capacity		181.80	2,350	7,070	2,866
	3640	44 C.Y. capacity		230.40	3,200	9,625	3,768
	3650	Elevating type, single engine, 11 C.Y. capacity		61.60	1,025	3,060	1,168
	3700	22 C.Y. capacity		113.95	1,975	5,935	2,099
	3710	Screening plant 110 H.P. w/5' x 10' screen		33.90	435	1,305	532.20
	3720	5' x 16' screen		36.15	540	1,625	614.20
	3850	Shovel, crawler-mounted, front-loading, 7 C.Y. capacity		200.60	2,750	8,270	3,259
	3855	12 C.Y. capacity		268.10	3,500	10,520	4,249
	3860	Shovel/backhoe bucket, 1/2 C.Y.		2.30	65	195	57.4
	3870	3/4 C.Y.		2.40	71.50	215	62.2
	3880	1 C.Y.		2.50	80	240	68
	3890	1-1/2 C.Y.		2.60	93.50	280	76.8
	3910	3 C.Y.		2.95	127	380	99.6
	3950	Stump chipper, 18" deep, 30 H.P.		7.21	188	565	170.7
	4110	Dozer, crawler, torque converter, diesel 80 H.P.		25.30	400	1,200	442.4
	4150	105 H.P.		30.85	505	1,520	550.8
	4200	140 H.P.		44.30	770	2,315	817.4
	4260	200 H.P.		65.75	1,200	3,585	1,243
	4310	300 H.P.		86.45	1,700	5,130	1,718
	4360	410 H.P.		117.20	2,225	6,670	2,272
	4370	500 H.P.		150.10	2,900	8,680	2,837
	4380	700 H.P.		222.15	4,100	12,290	4,236
	4400	Loader, crawler, torque conv., diesel, 1-1/2 C.Y., 80 H.P.		26.70	460	1,375	488.6
	4450	1-1/2 to 1-3/4 C.Y., 95 H.P.		30.40	590	1,775	598.2
	4510	1-3/4 to 2-1/4 C.Y., 130 H.P.		47.40	860	2,580	895.2
	4530	2-1/2 to 3-1/4 C.Y., 190 H.P.		57.75	1,075	3,220	1,106
	4560	3-1/2 to 5 C.Y., 275 H.P.		73.90	1,425	4,260	1,443
	4610	Front end loader, 4WD, articulated frame, diesel, 1 to 1-1/4 C.Y., 70 H.P.		16.65	225	675	268.1
	4620	1-1/2 to 1-3/4 C.Y., 95 H.P.		20.85	278	835	333.4
	4650	1-3/4 to 2 C.Y., 130 H.P.		24.40	365	1,100	415.4
	4710	2-1/2 to 3-1/2 C.Y., 145 H.P.		27.55	420	1,260	472.4

54 33 | Equipment Rental

		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY	
0	3 to 4-1/2 C.Y., 185 H.P.	Ea.	35.25	550	1,645	4,925	611	20
0	5-1/4 to 5-3/4 C.Y., 270 H.P.		56.50	845	2,540	7,625	960	
0	7 to 9 C.Y., 475 H.P.		98.35	1,775	5,345	16,000	1,856	
0	9 - 11 C.Y., 620 H.P.		132.15	2,500	7,495	22,500	2,556	
0	Skid steer loader, wheeled, 10 C.F., 30 H.P. gas		8.95	147	440	1,325	159.60	
0	1 C.Y., 78 H.P., diesel		16.90	243	730	2,200	281.20	
2	Skid-steer attachment, auger		.55	92	276	830	59.60	
3	Backhoe		.70	116	348	1,050	75.20	
4	Broom		.74	124	371	1,125	80.10	
5	Forks		.25	41	123	370	26.60	
6	Grapple		.57	94.50	283	850	61.15	
7	Concrete hammer		1.08	179	538	1,625	116.25	
8	Tree spade		.94	156	468	1,400	101.10	
9	Trencher		.76	126	378	1,125	81.70	
0	Trencher, chain, boom type, gas, operator walking, 12 H.P.		4.35	46.50	140	420	62.80	
0	Operator riding, 40 H.P.		17.10	293	880	2,650	312.80	
0	Wheel type, diesel, 4' deep, 12" wide		73.05	835	2,500	7,500	1,084	
0	6' deep, 20" wide		84.15	1,900	5,715	17,100	1,816	
0	Chain type, diesel, 5' deep, 8" wide		32.30	560	1,685	5,050	595.40	
0	Diesel, 8' deep, 16" wide		134.05	2,950	8,880	26,600	2,848	
2	Rock trencher, wheel type, 6' wide x 18" deep		19.05	320	960	2,875	344.40	
6	Chain type, 18" wide x 7' deep		103.05	2,825	8,465	25,400	2,517	
0	Tree spade, self-propelled		13.73	267	800	2,400	269.85	
0	Truck, dump, 2-axle, 12 ton, 8 C.Y. payload, 220 H.P.		27.80	225	675	2,025	357.40	
0	Three axle dump, 16 ton, 12 C.Y. payload, 400 H.P.		48.95	320	965	2,900	584.60	
0	Four axle dump, 25 ton, 18 C.Y. payload, 450 H.P.		58.00	470	1,405	4,225	745	
0	Dump trailer only, rear dump, 16-1/2 C.Y.		5.15	137	410	1,225	123.20	
0	20 C.Y.		5.60	155	465	1,400	137.80	
0	Flatbed, single axle, 1-1/2 ton rating		21.25	68.50	205	615	211	
0	3 ton rating		25.80	96.50	290	870	264.40	
0	Off highway rear dump, 25 ton capacity		67.70	1,225	3,645	10,900	1,271	
0	35 ton capacity		63.10	1,075	3,260	9,775	1,157	
0	50 ton capacity		85.40	1,475	4,425	13,300	1,568	
0	65 ton capacity		88.20	1,450	4,330	13,000	1,572	
0	100 ton capacity		113.50	1,950	5,815	17,400	2,071	
0	Vibratory plow, 25 H.P., walking	▼	7.35	60	180	540	94.80	
0	GENERAL EQUIPMENT RENTAL without operators	R015433 -10						40
0	Aerial lift, scissor type, to 15' high, 1000 lb. capacity, electric	Ea.	3.00	53.50	160	480	56	
0	To 25' high, 2000 lb. capacity		3.40	68.50	205	615	68.20	
0	Telescoping boom to 40' high, 500 lb. capacity, gas		17.40	310	925	2,775	324.20	
0	To 45' high, 500 lb. capacity		18.50	355	1,070	3,200	362	
0	To 60' high, 600 lb. capacity		20.80	470	1,405	4,225	447.40	
0	Air compressor, portable, 6.5 CFM, electric		.31	12.65	38	114	10.10	
0	Gasoline		.77	19	57	171	17.55	
0	Towed type, gas engine, 60 CFM		11.55	46.50	140	420	120.40	
0	160 CFM		13.35	50	150	450	136.80	
0	Diesel engine, rotary screw, 250 CFM		14.00	108	325	975	177	
0	365 CFM		18.75	132	395	1,175	229	
0	450 CFM		23.70	165	495	1,475	288.60	
0	600 CFM		41.45	227	680	2,050	467.60	
0	750 CFM	▼	41.60	237	710	2,125	474.80	
0	For silenced models, small sizes, add to rent		3%	5%	5%	5%		
0	Large sizes, add to rent		5%	7%	7%	7%		
0	Air tools, breaker, pavement, 60 lb.	Ea.	.50	9.65	29	87	9.80	
0	80 lb.		.50	10.35	31	93	10.20	
0	Drills, hand (jackhammer) 65 lb.		.60	16.65	50	150	14.80	
0	Track or wagon, swing boom, 4" drifter		55.90	815	2,450	7,350	937.20	
0	5" drifter	▼	67.20	915	2,750	8,250	1,088	

01 54 | Construction Aids

01 54 33 | Equipment Rental

01 54 33 Equipment Rental		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY	
40	0975	Track mounted quarry drill, 6" diameter drill	Ea.	102.85	1,350	4,060	12,200	1,635
	0980	Dust control per drill		.63	22	66	198	18.25
	0990	Hammer, chipping, 12 lb.		.55	25.50	77	231	19.80
	1000	Hose, air with couplings, 50' long, 3/4" diameter		.03	4.67	14	42	3.00
	1100	1" diameter		.04	6.35	19	57	4.00
	1200	1-1/2" diameter		.06	9.65	29	87	6.30
	1300	2" diameter		.07	12	36	108	7.75
	1400	2-1/2" diameter		.11	19	57	171	12.30
	1410	3" diameter		.14	23	69	207	14.90
	1450	Drill, steel, 7/8" x 2'		.05	8.65	26	78	5.60
	1460	7/8" x 6'		.05	9	27	81	5.90
	1520	Moil points		.02	4	12	36	2.55
	1525	Pneumatic nailer w/accessories		.48	31.50	95	285	22.85
	1530	Sheeting driver for 60 lb. breaker		.04	6	18	54	3.90
	1540	For 90 lb. breaker		.12	8	24	72	5.25
	1550	Spade, 25 lb.		.45	6.65	20	60	4.60
	1560	Tamper, single, 35 lb.		.55	36.50	109	325	26.20
	1570	Triple, 140 lb.		.82	54.50	164	490	38.25
	1580	Wrenches, impact, air powered, up to 3/4" bolt		.40	11.35	34	102	10
	1590	Up to 1-1/4" bolt		.50	23.50	70	210	16
	1600	Barricades, barrels, reflectorized, 1 to 99 barrels		.03	4.60	13.80	41.50	3
	1610	100 to 200 barrels		.02	3.53	10.60	32	2.30
	1620	Barrels with flashers, 1 to 99 barrels		.03	5.25	15.80	47.50	3.40
	1630	100 to 200 barrels		.03	4.20	12.60	38	2.75
	1640	Barrels with steady burn type C lights		.04	7	21	63	4.50
	1650	Illuminated board, trailer mounted, with generator		3.25	133	400	1,200	106
	1670	Portable barricade, stock, with flashers, 1 to 6 units		.03	5.25	15.80	47.50	3.40
	1680	25 to 50 units		.03	4.90	14.70	44	3.20
	1685	Butt fusion machine, wheeled, 1.5 HP electric, 2" - 8" diameter pipe		2.56	167	500	1,500	129.50
	1690	Tracked, 20 HP diesel, 4"-12" diameter pipe		10.43	490	1,465	4,400	336.40
	1695	83 HP diesel, 8" - 24" diameter pipe		27.52	975	2,930	8,800	806.15
	1700	Carts, brick, hand powered, 1000 lb. capacity		.44	72.50	218	655	47.10
	1800	Gas engine, 1500 lb., 7-1/2" lift		4.04	115	345	1,025	101.30
	1822	Dehumidifier, medium, 6 lb./hr., 150 CFM		.93	60	180	540	43.40
	1824	Large, 18 lb./hr., 600 CFM		1.89	122	366	1,100	88.30
	1830	Distributor, asphalt, trailer mounted, 2000 gal., 38 H.P. diesel		9.80	330	990	2,975	276.40
	1840	3000 gal., 38 H.P. diesel		11.25	360	1,080	3,250	306
	1850	Drill, rotary hammer, electric		.82	26.50	80	240	22.55
	1860	Carbide bit, 1-1/2" diameter, add to electric rotary hammer		.02	4.97	14.90	44.50	3.15
	1865	Rotary, crawler, 250 H.P.		131.70	2,050	6,175	18,500	2,289
	1870	Emulsion sprayer, 65 gal., 5 H.P. gas engine		2.85	97	291	875	81
	1880	200 gal., 5 H.P. engine		7.25	162	485	1,450	155
	1900	Floor auto-scrubbing machine, walk-behind, 28" path		3.76	247	740	2,225	178.10
	1930	Floodlight, mercury vapor, or quartz, on tripod, 1000 watt		.30	16	48	144	12
	1940	2000 watt		.55	30.50	91	273	22.60
	1950	Floodlights, trailer mounted with generator, 1 - 300 watt light		3.35	71.50	215	645	68.60
	1960	2 - 1000 watt lights		4.35	96.50	290	870	92.80
	2000	4 - 300 watt lights		4.10	91.50	275	825	87.80
	2005	Foam spray rig, incl. box trailer, compressor, generator, proportioner		27.23	475	1,430	4,300	503.80
	2020	Forklift, straight mast, 12' lift, 5000 lb., 2 wheel drive, gas		22.00	198	595	1,775	255
	2040	21' lift, 5000 lb., 4 wheel drive, diesel		17.90	243	730	2,200	288.20
	2050	For rough terrain, 42' lift, 35' reach, 9000 lb., 110 H.P.		25.10	470	1,405	4,225	481.50
	2060	For plant, 4 ton capacity, 80 H.P., 2 wheel drive, gas		13.40	98.50	295	885	166.20
	2080	10 ton capacity, 120 H.P., 2 wheel drive, diesel		19.95	172	515	1,550	262.50
	2100	Generator, electric, gas engine, 1.5 kW to 3 kW		3.10	11.35	34	102	36.50
	2200	5 kW		4.00	15	45	135	41
	2300	10 kW		7.50	36.50	110	330	82
	2400	25 kW		8.80	85	255	765	121.40

54 33 | Equipment Rental

		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY	
	Diesel engine, 20 kW	Ea.	10.10	71.50	215	645	123.80	40
	50 kW		18.15	98.50	295	885	204.20	
	100 kW		35.05	138	415	1,250	363.40	
	250 kW		69.05	243	730	2,200	698.40	
	Hammer, hydraulic, for mounting on boom, to 500 ft lb.		2.40	75	225	675	64.20	
	1000 ft lb.		4.15	125	375	1,125	108.20	
	Heaters, space, oil or electric, 50 MBH		1.84	8	24	72	19.50	
	100 MBH		3.32	11.35	34	102	33.35	
	300 MBH		10.62	36.50	110	330	106.95	
	500 MBH		21.42	48.50	145	435	200.35	
	Hose, water, suction with coupling, 20' long, 2" diameter		.02	3	9	27	1.95	
	3" diameter		.03	4.33	13	39	2.85	
	4" diameter		.03	5	15	45	3.25	
	6" diameter		.11	17.65	53	159	11.50	
	8" diameter		.20	33.50	100	300	21.60	
	Discharge hose with coupling, 50' long, 2" diameter		.02	2.67	8	24	1.75	
	3" diameter		.03	4.67	14	42	3.05	
	4" diameter		.04	7.35	22	66	4.70	
	6" diameter		.11	18.65	56	168	12.10	
	8" diameter		.20	33.50	100	300	21.60	
	Insulation blower		.67	6	18	54	8.95	
	Ladders, extension type, 16' to 36' long		.14	24	72	216	15.50	
	40' to 60' long		.20	32.50	98	294	21.20	
	Lance for cutting concrete		2.17	104	313	940	79.95	
	Lawn mower, rotary, 22", 5 H.P.		2.14	63.50	190	570	55.10	
	48" self propelled		2.88	75	225	675	68.05	
	Level, electronic, automatic, with tripod and leveling rod		1.64	109	328	985	78.70	
	Laser type, for pipe and sewer line and grade		.69	46	138	415	33.10	
	Rotating beam for interior control		1.15	76.50	230	690	55.20	
	Builder's optical transit, with tripod and rod		.09	15.35	46	138	9.90	
	Light towers, towable, with diesel generator, 2000 watt		4.10	91.50	275	825	87.80	
	4000 watt		4.35	96.50	290	870	92.80	
	Mixer, powered, plaster and mortar, 6 C.F., 7 H.P.		2.30	19.65	59	177	30.20	
	10 C.F., 9 H.P.		2.45	30.50	92	276	38	
	Nailer, pneumatic		.49	32.50	98	294	23.50	
	Paint sprayers complete, 8 CFM		.73	48.50	145	435	34.85	
	17 CFM		1.35	89.50	269	805	64.60	
	Pavers, bituminous, rubber tires, 8' wide, 50 H.P., diesel		29.45	490	1,465	4,400	528.60	
	10' wide, 150 H.P.		96.65	1,800	5,395	16,200	1,852	
	Crawler, 8' wide, 100 H.P., diesel		83.45	1,800	5,410	16,200	1,750	
	10' wide, 150 H.P.		103.55	2,225	6,645	19,900	2,157	
	Concrete paver, 12' to 24' wide, 250 H.P.		88.70	1,550	4,660	14,000	1,642	
	Placer-spreader-trimmer, 24' wide, 300 H.P.		127.05	2,525	7,575	22,700	2,531	
	Pump, centrifugal gas pump, 1-1/2" diameter, 65 GPM		3.70	48.50	145	435	58.60	
	2" diameter, 130 GPM		4.85	53.50	160	480	70.80	
	3" diameter, 250 GPM		5.10	55	165	495	73.80	
	6" diameter, 1500 GPM		25.55	173	520	1,550	308.40	
	Submersible electric pump, 1-1/4" diameter, 55 GPM		.31	16.35	49	147	12.30	
	1-1/2" diameter, 83 GPM		.35	18.65	56	168	14	
	2" diameter, 120 GPM		1.35	23.50	70	210	24.80	
	3" diameter, 300 GPM		2.25	41.50	125	375	43	
	4" diameter, 560 GPM		9.65	158	475	1,425	172.20	
	6" diameter, 1590 GPM		14.15	213	640	1,925	241.20	
	Diaphragm pump, gas, single, 1-1/2" diameter		1.15	49.50	148	445	38.80	
	2" diameter		3.95	61.50	185	555	68.60	
	3" diameter		3.95	61.50	185	555	68.60	
	Double, 4" diameter		5.90	107	320	960	111.20	
	Pressure washer 5 GPM, 3000 psi	▼	4.25	48.50	145	435	63	

01 54 | Construction Aids

01 54 33 | Equipment Rental

01 54 33 Equipment Rental			UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST, DAY
40	5500	Trash pump, self-priming, gas, 2" diameter	Ea.	4.05	21	63	189	43
	5600	Diesel, 4" diameter		7.75	73.50	220	660	108
	5650	Diesel, 6" diameter		20.50	140	420	1,250	248
	5655	Grout Pump		21.80	177	530	1,600	280.40
	5700	Salamanders, L.P. gas fired, 100,000 Btu		3.33	12.65	38	114	34.25
	5705	50,000 Btu		2.50	10.35	31	93	26.20
	5720	Sandblaster, portable, open top, 3 C.F. capacity		.55	26.50	80	240	20.40
	5730	6 C.F. capacity		.90	40	120	360	31.20
	5740	Accessories for above		.12	20.50	62	186	13.25
	5750	Sander, floor		.59	19.65	59	177	16.50
	5760	Edger		.54	21.50	64	192	17.10
	5800	Saw, chain, gas engine, 18" long		1.95	19.65	59	177	27.40
	5900	Hydraulic powered, 36" long		.70	63.50	190	570	43.60
	5950	60" long		.70	65	195	585	44.60
	6000	Masonry, table mounted, 14" diameter, 5 H.P.		1.25	56.50	170	510	84
	6050	Portable cut-off, 8 H.P.		2.10	32.50	98	294	36.40
	6100	Circular, hand held, electric, 7-1/4" diameter		.14	4.67	14	42	3.90
	6200	12" diameter		.21	7.65	23	69	6.30
	6250	Wall saw, w/hydraulic power, 10 H.P.		7.00	60	180	540	92
	6275	Shot blaster, walk-behind, 20" wide		4.65	290	870	2,600	211.20
	6280	Sidewalk broom, walk-behind		2.09	60.50	182	545	53.10
	6300	Steam cleaner, 100 gallons per hour		3.35	66.50	200	600	66.80
	6310	200 gallons per hour		4.65	81.50	245	735	86.20
	6340	Tar Kettle/Pot, 400 gallons		5.50	78.50	235	705	91
	6350	Torch, cutting, acetylene-oxygen, 150' hose, excludes gases		.30	14	42	126	10.80
	6360	Hourly operating cost includes tips and gas		10.80				86.40
	6410	Toilet, portable chemical		.12	20	60	180	12.90
	6420	Recycle flush type		.14	24	72	216	15.50
	6430	Toilet, fresh water flush, garden hose,		.17	28.50	85	255	18.35
	6440	Hoisted, non-flush, for high rise		.14	23.50	71	213	15.30
	6465	Tractor, farm with attachment		18.25	275	825	2,475	311
	6500	Trailers, platform, flush deck, 2 axle, 25 ton capacity		5.20	112	335	1,000	106.60
	6600	40 ton capacity		6.75	155	465	1,400	147
	6700	3 axle, 50 ton capacity		7.25	172	515	1,550	161
	6800	75 ton capacity		9.05	225	675	2,025	207.40
	6810	Trailer mounted cable reel for high voltage line work		5.14	245	734	2,200	187.90
	6820	Trailer mounted cable tensioning rig		10.22	485	1,460	4,375	373.75
	6830	Cable pulling rig		68.64	2,725	8,180	24,500	2,180
	6900	Water tank trailer, engine driven discharge, 5000 gallons		6.75	145	435	1,300	141
	6925	10,000 gallons		9.20	202	605	1,825	194.60
	6950	Water truck, off highway, 6000 gallons		75.60	800	2,400	7,200	1,085
	7010	Tram car for high voltage line work, powered, 2 conductor		4.44	133	399	1,200	115.30
	7020	Transit (builder's level) with tripod		.09	15.35	46	138	9.30
	7030	Trench box, 3000 lb., 6' x 8'		.56	93	279	835	60.30
	7040	7200 lb., 6' x 20'		1.05	175	525	1,575	113.40
	7050	8000 lb., 8' x 16'		1.05	175	525	1,575	113.40
	7060	9500 lb., 8' x 20'		1.19	199	597	1,800	128.90
	7065	11,000 lb., 8' x 24'		1.25	209	627	1,875	135.40
	7070	12,000 lb., 10' x 20'		1.36	227	680	2,050	146.90
	7100	Truck, pickup, 3/4 ton, 2 wheel drive		11.50	58.50	175	525	127
	7200	4 wheel drive		11.75	75	225	675	138
	7250	Crew carrier, 9 passenger		16.30	86.50	260	780	180.40
	7290	Flat bed truck, 20,000 lb. GVW		17.60	125	375	1,125	213.60
	7300	Tractor, 4 x 2, 220 H.P.		24.60	197	590	1,775	314.80
	7410	330 H.P.		36.35	270	810	2,425	402.30
	7500	6 x 4, 380 H.P.		41.65	315	945	2,825	502.20
	7600	450 H.P.		50.75	380	1,145	3,425	619
	7610	Tractor, with A frame, boom and winch, 225 H.P.		27.40	272	815	2,450	362.20

54 33 | Equipment Rental

		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY	
0	Vacuum truck, hazardous material, 2500 gallons	Ea.	11.55	298	895	2,675	271.40	40
5	5,000 gallons		13.40	415	1,250	3,750	357.20	
0	Vacuum, HEPA, 16 gallon, wet/dry		.74	18	54	162	16.70	
5	55 gallon, wet/dry		.59	27	81	243	20.90	
0	Water tank, portable		.16	27	80.70	242	17.40	
0	Sewer/catch basin vacuum, 14 C.Y., 1500 gallons		17.81	625	1,880	5,650	518.50	
0	Welder, electric, 200 amp		2.14	16.35	49	147	26.90	
0	300 amp		3.11	20	60	180	36.90	
0	Gas engine, 200 amp		11.70	23.50	70	210	107.60	
0	300 amp		13.35	24.50	74	222	121.60	
0	Wheelbarrow, any size		.08	12.65	38	114	8.25	
0	Wrecking ball, 4000 lb.		2.25	70	210	630	60	
0	HIGHWAY EQUIPMENT RENTAL without operators	R015433 -10						50
0	Asphalt batch plant, portable drum mixer, 100 ton/hr.	Ea.	70.30	1,425	4,310	12,900	1,424	
0	200 ton/hr.		78.75	1,525	4,570	13,700	1,544	
0	300 ton/hr.		91.25	1,800	5,375	16,100	1,805	
0	Backhoe attachment, long stick, up to 185 H.P., 10.5' long		.34	22.50	67	201	16.10	
0	Up to 250 H.P., 12' long		.36	24	72	216	17.30	
0	Over 250 H.P., 15' long		.50	33	99	297	23.80	
0	Special dipper arm, up to 100 H.P., 32' long		1.02	67.50	203	610	48.75	
0	Over 100 H.P., 33' long		1.27	84.50	253	760	60.75	
0	Catch basin/sewer cleaning truck, 3 ton, 9 C.Y., 1000 gal.		37.35	395	1,185	3,550	535.80	
0	Concrete batch plant, portable, electric, 200 C.Y./hr.		27.69	510	1,530	4,600	527.50	
0	Grader/dozer attachment, ripper/scarifier, rear mounted, up to 135 H.P.		3.35	65	195	585	65.80	
0	Up to 180 H.P.		3.95	83.50	250	750	81.60	
0	Up to 250 H.P.		4.35	95	285	855	91.80	
0	Pavement removal bucket, for hydraulic excavator, up to 90 H.P.		1.80	51.50	155	465	45.40	
0	Up to 200 H.P.		2.00	71.50	215	645	59	
0	Over 200 H.P.		2.15	85	255	765	68.20	
0	Aggregate spreader, self-propelled, 187 H.P.		46.10	690	2,065	6,200	781.80	
0	Chemical spreader, 3 C.Y.		3.00	43.50	130	390	50	
0	Hammermill, traveling, 250 H.P.		68.15	1,950	5,880	17,600	1,721	
0	Horizontal borer, 3" diameter, 13 H.P. gas driven		5.65	53.50	160	480	77.20	
0	Horizontal directional drill, 20,000 lb. thrust, 78 H.P. diesel		28.00	665	1,990	5,975	622	
0	30,000 lb. thrust, 115 H.P.		34.65	1,025	3,045	9,125	886.20	
0	50,000 lb. thrust, 170 H.P.		49.60	1,300	3,895	11,700	1,176	
0	Mud trailer for HDD, 1500 gallons, 175 H.P., gas		27.15	153	460	1,375	309.20	
0	Hydromulcher, diesel, 3000 gallon, for truck mounting		19.10	252	755	2,275	303.80	
0	Gas, 600 gallon		7.55	100	300	900	120.40	
0	Joint & crack cleaner, walk behind, 25 H.P.		3.40	50	150	450	57.20	
0	Filler, trailer mounted, 400 gallons, 20 H.P.		8.55	213	640	1,925	196.40	
0	Paint striper, self-propelled, 40 gallon, 22 H.P.		6.70	158	475	1,425	148.60	
0	120 gallon, 120 H.P.		20.45	410	1,225	3,675	408.60	
0	Post drivers, 6" I-Beam frame, for truck mounting		15.15	405	1,210	3,625	363.20	
0	Road sweeper, self-propelled, 8' wide, 90 H.P.		35.10	565	1,700	5,100	620.80	
0	Road sweeper, vacuum assisted, 4 C.Y., 220 gallons		63.20	620	1,855	5,575	876.60	
0	Road mixer, self-propelled, 130 H.P.		43.95	770	2,305	6,925	812.60	
0	310 H.P.		76.25	2,125	6,360	19,100	1,882	
0	Cold mix paver, incl. pug mill and bitumen tank, 165 H.P.		90.00	2,150	6,460	19,400	2,012	
0	Pavement brush, towed		3.10	95	285	855	81.80	
0	Paver, asphalt, wheel or crawler, 130 H.P., diesel		89.70	2,125	6,390	19,200	1,996	
0	Paver, road widener, gas 1' to 6', 67 H.P.		44.75	875	2,620	7,850	882	
0	Diesel, 2' to 14', 88 H.P.		56.90	1,050	3,155	9,475	1,086	
0	Slipform pavers, curb and gutter, 2 track, 75 H.P.		40.75	725	2,175	6,525	761	
0	4 track, 165 H.P.		36.65	735	2,200	6,600	733.20	
0	Median barrier, 215 H.P.		41.40	755	2,260	6,775	783.20	
0	Trailer, low bed, 75 ton capacity		9.75	225	675	2,025	213	
0	Road planer, walk behind, 10' cutting width, 10 H.P.		3.20	32.50	98	294	45.20	

01 54 | Construction Aids

01 54 33 | Equipment Rental

01 54 33 Equipment Rental			UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY	
50	5100	Self-propelled, 12" cutting width, 64 H.P.	Ea.	8.90	112	335	1,000	138.20	
	5120	Traffic line remover, metal ball blaster, truck mounted, 115 H.P.		44.60	740	2,220	6,650	800.80	
	5140	Grinder, truck mounted, 115 H.P.		50.10	805	2,410	7,225	888.80	
	5160	Walk-behind, 11 H.P.		3.65	53.50	160	480	52.00	
	5200	Pavement profiler, 4' to 6' wide, 450 H.P.		227.55	3,350	10,035	30,100	3,807.00	
	5300	8' to 10' wide, 750 H.P.		353.65	4,375	13,150	39,500	4,938.00	
	5400	Roadway plate, steel, 1" x 8' x 20'		.07	12.35	37	111	1.16	
	5600	Stabilizer, self-propelled, 150 H.P.		43.25	610	1,825	5,475	711.00	
	5700	310 H.P.		84.85	1,500	4,530	13,600	1,585.00	
	5800	Striper, thermal, truck mounted, 120 gallon paint, 460 H.P.		54.85	495	1,485	4,450	735.00	
	5900	Thermal paint heating kettle, 115 gallons		3.64	25.50	77	231	44.50	
	6000	Tar kettle, 330 gallon, trailer mounted		5.15	60	180	540	77.20	
	7000	Tunnel locomotive, diesel, 8 to 12 ton		29.20	570	1,710	5,125	575.60	
	7005	Electric, 10 ton		25.40	650	1,955	5,875	594.20	
	7010	Muck cars, 1/2 C.Y. capacity		2.00	23.50	71	213	30.20	
	7020	1 C.Y. capacity		2.20	31.50	95	285	36.60	
	7030	2 C.Y. capacity		2.30	36.50	110	330	40.40	
	7040	Side dump, 2 C.Y. capacity		2.50	43.50	130	390	46.00	
	7050	3 C.Y. capacity		3.40	50	150	450	57.20	
	7060	5 C.Y. capacity		4.85	63.50	190	570	76.80	
	7100	Ventilating blower for tunnel, 7-1/2 H.P.		1.75	50	150	450	44.00	
	7110	10 H.P.		1.88	51.50	155	465	46.05	
	7120	20 H.P.		2.68	67.50	202	605	61.85	
	7140	40 H.P.		4.17	95	285	855	90.35	
	7160	60 H.P.		6.38	147	440	1,325	139.05	
	7175	75 H.P.		8.35	196	587	1,750	184.20	
	7180	200 H.P.		15.40	293	880	2,650	299.20	
	7800	Windrow loader, elevating		51.85	1,325	3,960	11,900	1,257.00	
60	0010	LIFTING AND HOISTING EQUIPMENT RENTAL without operators	R015433 -10	Ea.	26.70	705	2,120	6,350	637.60
	0120	Aerial lift truck, 2 person, to 80'			15.80	270	810	2,425	288.40
	0140	Boom work platform, 40' snorkel	R015433 -10		14.55	193	580	1,750	232.40
	0150	Crane, flatbed mounted, 3 ton capacity			29.95	1,550	4,670	14,000	1,174.00
	0200	Crane, climbing, 106' jib, 6000 lb. capacity, 410 fpm	R312316 -45		36.20	1,975	5,920	17,800	1,474.00
	0300	101' jib, 10,250 lb. capacity, 270 fpm			33.60	1,800	5,400	16,200	1,348.00
	0500	Tower, static, 130' high, 106' jib, 6200 lb. capacity at 400 fpm		33.19	635	1,910	5,725	647.50	
	0600	Crawler mounted, lattice boom, 1/2 C.Y., 15 tons at 12' radius		44.25	795	2,390	7,175	832.00	
	0700	3/4 C.Y., 20 tons at 12' radius		59.00	1,075	3,190	9,575	1,110.00	
	0800	1 C.Y., 25 tons at 12' radius		59.00	1,075	3,215	9,650	1,115.00	
	0900	1-1/2 C.Y., 40 tons at 12' radius		62.90	1,250	3,770	11,300	1,253.00	
	1000	2 C.Y., 50 tons at 12' radius		67.55	1,475	4,415	13,200	1,423.00	
	1100	3 C.Y., 75 tons at 12' radius		76.50	1,700	5,080	15,200	1,628.00	
	1200	100 ton capacity, 60' boom		96.25	1,975	5,940	17,800	1,908.00	
	1300	165 ton capacity, 60' boom		118.45	2,475	7,440	22,300	2,438.00	
	1400	200 ton capacity, 70' boom		166.45	3,750	11,245	33,700	3,561.00	
	1500	350 ton capacity, 80' boom		35.08	1,125	3,350	10,100	950.00	
	1600	Truck mounted, lattice boom, 6 x 4, 20 tons at 10' radius		37.95	1,225	3,650	11,000	1,034.00	
	1700	25 tons at 10' radius		41.11	1,300	3,880	11,600	1,105.00	
	1800	8 x 4, 30 tons at 10' radius		43.92	1,350	4,060	12,200	1,163.00	
	1900	40 tons at 12' radius		49.48	1,425	4,300	12,900	1,296.00	
	2000	60 tons at 15' radius		55.38	1,525	4,590	13,800	1,363.00	
	2050	82 tons at 15' radius		62.13	1,675	5,000	15,000	1,487.00	
	2100	90 tons at 15' radius		70.13	1,875	5,590	16,800	1,679.00	
	2200	115 tons at 15' radius		81.45	1,950	5,885	17,700	1,829.00	
	2300	150 tons at 18' radius		82.43	2,075	6,240	18,700	1,907.00	
	2350	165 tons at 18' radius		36.75	530	1,590	4,775	602.00	
	2400	Truck mounted, hydraulic, 12 ton capacity		39.15	640	1,920	5,750	687.20	
	2500	25 ton capacity		39.70	655	1,970	5,900	711.60	
	2550	33 ton capacity							

54 33 | Equipment Rental

		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY	
	40 ton capacity	Ea.	51.70	770	2,305	6,925	874.60	60
	55 ton capacity		67.65	930	2,795	8,375	1,100	
	80 ton capacity		88.65	1,400	4,225	12,700	1,554	
	100 ton capacity		84.25	1,450	4,365	13,100	1,547	
	120 ton capacity		96.15	1,575	4,690	14,100	1,707	
	150 ton capacity		114.30	2,075	6,190	18,600	2,152	
	Self-propelled, 4 x 4, with telescoping boom, 5 ton		15.70	232	695	2,075	264.60	
	12-1/2 ton capacity		28.15	370	1,115	3,350	448.20	
	15 ton capacity		28.85	390	1,175	3,525	465.80	
	20 ton capacity		31.05	450	1,355	4,075	519.40	
	25 ton capacity		32.65	505	1,520	4,550	565.20	
	40 ton capacity		40.25	570	1,710	5,125	664	
	Derricks, guy, 20 ton capacity, 60' boom, 75' mast		23.51	380	1,144	3,425	416.90	
	100' boom, 115' mast		37.04	655	1,970	5,900	690.30	
	Stiffleg, 20 ton capacity, 70' boom, 37' mast		25.93	495	1,490	4,475	505.45	
	100' boom, 47' mast		39.91	795	2,380	7,150	795.30	
	Helicopter, small, lift to 1250 lb. maximum, w/pilot		97.18	3,075	9,240	27,700	2,625	
	Hoists, chain type, overhead, manual, 3/4 ton		.10	.33	1	3	1	
	10 ton		.70	6	18	54	9.20	
	Hoist and tower, 5000 lb. capacity, portable electric, 40' high		3.96	220	659	1,975	163.50	
	For each added 10' section, add		.10	17.35	52	156	11.20	
	Hoist and single tubular tower, 5000 lb. electric, 100' high		5.43	305	920	2,750	227.45	
	For each added 6'-6" section, add		.18	29.50	89	267	19.25	
	Hoist and double tubular tower, 5000 lb., 100' high		5.89	340	1,013	3,050	249.70	
	For each added 6'-6" section, add		.20	33	99	297	21.40	
	Hoist and tower, mast type, 6000 lb., 100' high		6.25	350	1,051	3,150	260.20	
	For each added 10' section, add		.12	20.50	62	186	13.35	
	Hoist and tower, personnel, electric, 2000 lb., 100' @ 125 fpm		14.61	930	2,790	8,375	674.90	
	3000 lb., 100' @ 200 fpm		16.68	1,050	3,170	9,500	767.45	
	3000 lb., 150' @ 300 fpm		18.58	1,175	3,550	10,700	858.65	
	4000 lb., 100' @ 300 fpm		19.09	1,200	3,620	10,900	876.70	
	6000 lb., 100' @ 275 fpm		20.27	1,275	3,790	11,400	920.15	
	For added heights up to 500', add	L.F.	.01	1.67	5	15	1.10	
	Jacks, hydraulic, 20 ton	Ea.	.05	2	6	18	1.60	
	100 ton		.40	11.65	35	105	10.20	
	Jacks, hydraulic, climbing w/50' jackrods, control console, 30 ton capacity		1.89	126	378	1,125	90.70	
	For each added 10' jackrod section, add		.05	3.33	10	30	2.40	
	50 ton capacity		3.05	203	609	1,825	146.20	
	For each added 10' jackrod section, add		.06	4	12	36	2.90	
	125 ton capacity		8.00	535	1,600	4,800	384	
	For each added 10' jackrod section, add		.55	36.50	109	325	26.20	
	Cable jack, 10 ton capacity with 200' cable		1.59	106	317	950	76.10	
	For each added 50' of cable, add		.19	12.35	37	111	8.90	
	WELLPOINT EQUIPMENT RENTAL without operators	R015433 -10						70
	Based on 2 months rental							
	Combination jetting & wellpoint pump, 60 H.P. diesel	Ea.	15.87	315	938	2,825	314.55	
	High pressure gas jet pump, 200 H.P., 300 psi	"	36.61	267	802	2,400	453.30	
	Discharge pipe, 8" diameter	L.F.	.01	.51	1.53	4.59	.40	
	12" diameter		.01	.75	2.24	6.70	.55	
	Header pipe, flows up to 150 GPM, 4" diameter		.01	.46	1.38	4.14	.35	
	400 GPM, 6" diameter		.01	.54	1.63	4.89	.40	
	800 GPM, 8" diameter		.01	.75	2.24	6.70	.55	
	1500 GPM, 10" diameter		.01	.79	2.36	7.10	.55	
	2500 GPM, 12" diameter		.02	1.49	4.47	13.40	1.05	
	4500 GPM, 16" diameter		.03	1.91	5.72	17.15	1.40	
	For quick coupling aluminum and plastic pipe, add		.03	1.97	5.92	17.75	1.40	
	Wellpoint, 25' long, with fittings & riser pipe, 1-1/2" or 2" diameter	Ea.	.06	3.94	11.81	35.50	2.85	

01 54 | Construction Aids

01 54 33 | Equipment Rental

01 54 33 Equipment Rental			UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY	
70	1200	Wellpoint pump, diesel powered, 4" suction, 20 H.P.	Ea.	6.89	180	541	1,625	163.30	
	1300	6" suction, 30 H.P.		9.35	224	671	2,025	209	
	1400	8" suction, 40 H.P.		12.64	305	920	2,750	285.10	
	1500	10" suction, 75 H.P.		19.15	360	1,075	3,225	368.20	
	1600	12" suction, 100 H.P.		27.47	570	1,710	5,125	561.75	
	1700	12" suction, 175 H.P.	▼	.36	630	1,890	5,675	700.90	
80	0010	MARINE EQUIPMENT RENTAL without operators							
	0200	Barge, 400 Ton, 30' wide x 90' long	R015433 -10	Ea.	16.65	1,075	3,230	9,700	779.20
	0240	800 Ton, 45' wide x 90' long			20.15	1,300	3,915	11,700	944.20
	2000	Tugboat, diesel, 100 H.P.			31.60	215	645	1,925	381.80
	2040	250 H.P.			64.00	395	1,180	3,550	748
	2080	380 H.P.	▼		131.50	1,175	3,505	10,500	1,753

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew A-1						
Build Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
Comp Saw, gas manual		66.00		72.60		8.25
L.H. Totals		\$346.80		\$504.60	\$43.35	\$63.08
Crew A-1A						
Build Worker	\$45.40	\$363.20	\$70.20	\$561.60	\$45.40	\$70.20
Shovel, 20"		211.20		232.32		26.40
L.H. Totals		\$574.40		\$793.92	\$71.80	\$99.24
Crew A-1B						
Build Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
Comp Saw		148.00		162.80		18.50
L.H. Totals		\$428.80		\$594.80	\$53.60	\$74.35
Crew A-1C						
Build Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
Chain, gas, 18"		27.40		30.14		3.42
L.H. Totals		\$308.20		\$462.14	\$38.52	\$57.77
Crew A-1D						
Build Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
Comp plate, gas, 18"		32.20		35.42		4.03
L.H. Totals		\$313.00		\$467.42	\$39.13	\$58.43
Crew A-1E						
Build Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
Plate, gas, 21"		40.80		44.88		5.10
L.H. Totals		\$321.60		\$476.88	\$40.20	\$59.61
Crew A-1F						
Build Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
Comp tamper, gas, 8"		44.20		48.62		5.53
L.H. Totals		\$325.00		\$480.62	\$40.63	\$60.08
Crew A-1G						
Build Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
Comp tamper, gas, 15"		49.80		54.78		6.22
L.H. Totals		\$330.60		\$486.78	\$41.33	\$60.85
Crew A-1H						
Build Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
Steam Cleaner		66.80		73.48		8.35
L.H. Totals		\$347.60		\$505.48	\$43.45	\$63.19
Crew A-1J						
Build Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
Comp, Walk-Behind, 5 H.P.		58.45		64.30		7.31
L.H. Totals		\$339.25		\$496.30	\$42.41	\$62.04
Crew A-1K						
Build Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
Comp, Walk-Behind, 8 H.P.		89.75		98.72		11.22
L.H. Totals		\$370.55		\$530.73	\$46.32	\$66.34
Crew A-1M						
Build Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
Comp, Walk-Behind		53.10		58.41		6.64
L.H. Totals		\$333.90		\$490.41	\$41.74	\$61.30

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew A-2						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$34.85	\$53.37
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10	8.79	9.67
24 L.H., Daily Totals		\$1047.40		\$1512.90	\$43.64	\$63.04
Crew A-2A						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$34.85	\$53.37
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10		
1 Concrete Saw		148.00		162.80	14.96	16.45
24 L.H., Daily Totals		\$1195.40		\$1675.70	\$49.81	\$69.82
Crew A-2B						
1 Truck Driver (light)	\$34.35	\$274.80	\$52.10	\$416.80	\$34.35	\$52.10
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10		26.38
8 L.H., Daily Totals		\$485.80		\$648.90	\$60.73	\$81.11
Crew A-3B						
1 Truck Driver (light)	\$34.35	\$274.80	\$52.10	\$416.80	\$34.35	\$52.10
1 Pickup truck, 4 x 4, 3/4 ton		139.00		152.90		17.38
8 L.H., Daily Totals		\$413.80		\$569.70	\$51.73	\$71.21
Crew A-3B						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$40.92	\$61.90
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Dump Truck, 12 C.Y., 400 H.P.		584.60		643.06		66.06
1 F.E. Loader, W.M., 2.5 C.Y.		472.40		519.64		72.67
16 L.H., Daily Totals		\$1711.80		\$2153.10	\$106.99	\$134.57
Crew A-3B						
1 Equip. Oper. (light)	\$44.75	\$358.00	\$67.55	\$540.40	\$44.75	\$67.55
1 Loader, Skid Steer, 78 H.P.		281.20		309.32		35.15
8 L.H., Daily Totals		\$639.20		\$849.72	\$79.90	\$106.22
Crew A-3D						
1 Truck Driver, Light	\$34.35	\$274.80	\$52.10	\$416.80	\$34.35	\$52.10
1 Pickup truck, 4 x 4, 3/4 ton		139.00		152.90		
1 Flatbed Trailer, 25 Ton		108.60		119.46		30.95
8 L.H., Daily Totals		\$522.40		\$689.16	\$65.30	\$86.14
Crew A-3B						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.55	\$62.85
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Pickup truck, 4 x 4, 3/4 ton		139.00		152.90		8.69
16 L.H., Daily Totals		\$803.80		\$1158.50	\$50.24	\$72.41
Crew A-3F						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.55	\$62.85
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Pickup truck, 4 x 4, 3/4 ton		139.00		152.90		
1 Truck Tractor, 6x4, 380 H.P.		522.20		574.42		
1 Lowbed Trailer, 75 Ton		213.00		234.30		54.64
16 L.H., Daily Totals		\$1539.00		\$1967.22	\$96.19	\$122.95

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew A-3G						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.55	\$62.85
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Pickup truck, 4 x 4, 3/4 ton		139.00		152.90		
1 Truck Tractor, 6x4, 450 H.P.		635.00		698.50		
1 Lowbed Trailer, 75 Ton		213.00		234.30	61.69	67.86
16 L.H., Daily Totals		\$1651.80		\$2091.30	\$103.24	\$130.71
Crew A-3H						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$47.80	\$72.15
1 Hyd. crane, 12 Ton (daily)		824.00		906.40	103.00	113.30
8 L.H., Daily Totals		\$1206.40		\$1483.60	\$150.80	\$185.45
Crew A-3I						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$47.80	\$72.15
1 Hyd. crane, 25 Ton (daily)		953.20		1048.52	119.15	131.07
8 L.H., Daily Totals		\$1335.60		\$1625.72	\$166.95	\$203.22
Crew A-3J						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$47.80	\$72.15
1 Hyd. crane, 40 Ton (daily)		1184.00		1302.40	148.00	162.80
8 L.H., Daily Totals		\$1566.40		\$1879.60	\$195.80	\$234.95
Crew A-3K						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$44.52	\$67.20
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Hyd. crane, 55 Ton (daily)		1471.00		1618.10		
1 P/U Truck, 3/4 Ton (daily)		152.00		167.20	101.44	111.58
16 L.H., Daily Totals		\$2335.40		\$2860.50	\$145.96	\$178.78
Crew A-3L						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$44.52	\$67.20
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Hyd. crane, 80 Ton (daily)		2119.00		2330.90		
1 P/U Truck, 3/4 Ton (daily)		152.00		167.20	141.94	156.13
16 L.H., Daily Totals		\$2983.40		\$3573.30	\$186.46	\$223.33
Crew A-3M						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$44.52	\$67.20
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Hyd. crane, 100 Ton (daily)		2129.00		2341.90		
1 P/U Truck, 3/4 Ton (daily)		152.00		167.20	142.56	156.82
16 L.H., Daily Totals		\$2993.40		\$3584.30	\$187.09	\$224.02
Crew A-3N						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$47.80	\$72.15
1 Tower crane (monthly)		1005.00		1105.50	125.63	138.19
8 L.H., Daily Totals		\$1387.40		\$1682.70	\$173.43	\$210.34
Crew A-3P						
1 Equip. Oper., Light	\$44.75	\$358.00	\$67.55	\$540.40	\$44.75	\$67.55
1 A.T. Forklift, 42' lift		481.80		529.98	60.23	66.25
8 L.H., Daily Totals		\$839.80		\$1070.38	\$104.97	\$133.80
Crew A-4						
2 Carpenters	\$44.10	\$705.60	\$67.85	\$1085.60	\$42.15	\$64.30
1 Painter, Ordinary	38.25	306.00	57.20	457.60		
24 L.H., Daily Totals		\$1011.60		\$1543.20	\$42.15	\$64.30

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew A-5						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$35.10	\$561.60
25 Truck Driver (light)	34.35	68.70	52.10	104.20		
25 Flatbed Truck, Gas, 1.5 Ton		52.75		58.02		2.93
18 L.H., Daily Totals		\$683.05		\$1026.22	\$37.95	\$59.85
Crew A-6						
1 Instrument Man	\$45.40	\$363.20	\$70.20	\$561.60	\$44.08	\$56.16
1 Rodman/Chainman	42.75	342.00	64.75	518.00		
1 Level, electronic		78.70		86.57		4.90
16 L.H., Daily Totals		\$783.90		\$1166.17	\$48.99	\$57.95
Crew A-7						
1 Chief Of Party	\$56.40	\$451.20	\$87.15	\$697.20	\$48.18	\$56.16
1 Instrument Man	45.40	363.20	70.20	561.60		
1 Rodman/Chainman	42.75	342.00	64.75	518.00		
1 Level, electronic		78.70		86.57		3.28
24 L.H., Daily Totals		\$1235.10		\$1863.37	\$51.46	\$57.95
Crew A-8						
1 Chief of Party	\$56.40	\$451.20	\$87.15	\$697.20	\$46.83	\$56.16
1 Instrument Man	45.40	363.20	70.20	561.60		
2 Rodmen/Chainmen	42.75	684.00	64.75	1036.00		
1 Level, electronic		78.70		86.57		2.46
32 L.H., Daily Totals		\$1577.10		\$2381.37	\$49.26	\$57.95
Crew A-9						
1 Asbestos Foreman	\$49.35	\$394.80	\$76.90	\$615.20	\$48.91	\$56.16
7 Asbestos Workers	48.85	2735.60	76.10	4261.60		
64 L.H., Daily Totals		\$3130.40		\$4876.80	\$48.91	\$56.16
Crew A-10A						
1 Asbestos Foreman	\$49.35	\$394.80	\$76.90	\$615.20	\$49.02	\$56.16
2 Asbestos Workers	48.85	781.60	76.10	1217.60		
24 L.H., Daily Totals		\$1176.40		\$1832.80	\$49.02	\$56.16
Crew A-10B						
1 Asbestos Foreman	\$49.35	\$394.80	\$76.90	\$615.20	\$48.98	\$56.16
3 Asbestos Workers	48.85	1172.40	76.10	1826.40		
32 L.H., Daily Totals		\$1567.20		\$2441.60	\$48.98	\$56.16
Crew A-10C						
3 Asbestos Workers	\$48.85	\$1172.40	\$76.10	\$1826.40	\$48.85	\$56.16
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10		8.79
24 L.H., Daily Totals		\$1383.40		\$2058.50	\$57.64	\$56.16
Crew A-10D						
2 Asbestos Workers	\$48.85	\$781.60	\$76.10	\$1217.60	\$46.69	\$56.16
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Hydraulic Crane, 33 Ton		711.60		782.76		22.24
32 L.H., Daily Totals		\$2205.60		\$3075.56	\$68.97	\$56.16
Crew A-11						
1 Asbestos Foreman	\$49.35	\$394.80	\$76.90	\$615.20	\$48.91	\$56.16
7 Asbestos Workers	48.85	2735.60	76.10	4261.60		
2 Chip Hammers, 12 Lb., Elec.		39.60		43.56		6.07
64 L.H., Daily Totals		\$3170.00		\$4920.36	\$49.33	\$56.16

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew A-12						
Foreman	\$49.35	\$394.80	\$76.90	\$615.20	\$48.91	\$76.20
Workers	48.85	2735.60	76.10	4261.60		
Equipment, 14 CY, 1500 Gal.		518.50		570.35		
Truck, 20,000 GW		215.80		237.38	11.47	12.62
Daily Totals		\$3864.70		\$5684.53	\$60.39	\$88.82
Crew A-13						
Foreman (light)	\$44.75	\$358.00	\$67.55	\$540.40	\$44.75	\$67.55
Equipment, 14 CY, 1500 Gal.		518.50		570.35		
Truck, 20,000 GW		215.80		237.38	91.79	100.97
Daily Totals		\$1092.30		\$1348.13	\$136.54	\$168.52
Crew B-1						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.77	\$55.03
Laborer	35.10	561.60	54.00	864.00		
Daily Totals		\$858.40		\$1320.80	\$35.77	\$55.03
Crew B-1A						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.77	\$55.03
Laborer	35.10	561.60	54.00	864.00		
Truck, 20,000 GW		21.60		23.76		
Truck, 20,000 GW		172.80		190.08	8.10	8.91
Daily Totals		\$1052.80		\$1534.64	\$43.87	\$63.94
Crew B-1B						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.77	\$59.31
Laborer	35.10	561.60	54.00	864.00		
Truck, 20,000 GW		47.80		57.20		
Truck, 20,000 GW		21.60		23.76		
Truck, 20,000 GW		172.80		190.08		
Truck, 20,000 GW		61.20		67.20	25.20	27.72
Daily Totals		\$2047.20		\$2785.04	\$63.98	\$87.03
Crew B-2						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.50	\$54.62
Laborer	35.10	1123.20	54.00	1728.00		
Daily Totals		\$1420.00		\$2184.80	\$35.50	\$54.62
Crew B-3						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.41	\$57.08
Laborer	35.10	561.60	54.00	864.00		
Truck, 20,000 GW		46.55		56.00		
Truck, 20,000 GW		35.30		56.80		
Truck, 20,000 GW		1106.00		1216.60		
Truck, 20,000 GW		1169.20		1286.12	47.40	52.14
Daily Totals		\$4070.80		\$5242.32	\$84.81	\$109.22
Crew B-3A						
Foreman (outside)	\$35.10	\$1123.20	\$54.00	\$1728.00	\$37.39	\$57.25
Laborer	46.55	372.40	70.25	562.00		
Truck, 20,000 GW		960.40		1056.44	24.01	26.41
Daily Totals		\$2456.00		\$3346.44	\$61.40	\$83.66
Crew B-3B						
Foreman (outside)	\$35.10	\$561.60	\$54.00	\$864.00	\$38.01	\$57.95
Laborer	46.55	372.40	70.25	562.00		
Truck, 20,000 GW		35.30		56.80		
Truck, 20,000 GW		363.80		400.18		
Truck, 20,000 GW		584.60		643.06	29.64	32.60
Daily Totals		\$2164.80		\$2897.64	\$67.65	\$90.55

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-3C						
3 Laborers	\$35.10	\$842.40	\$54.00	\$1296.00	\$37.96	\$58.06
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
1 Crawler Loader, 4 C.Y.		1443.00		1587.30	45.09	49.60
32 L.H., Daily Totals		\$2657.80		\$3445.30	\$83.06	\$107.67
Crew B-4						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.47	\$54.44
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Truck Tractor, 220 H.P.		314.80		346.28		
1 Flatbed Trailer, 40 Ton		147.00		161.70	9.62	10.58
48 L.H., Daily Totals		\$2164.20		\$3121.18	\$45.09	\$65.02
Crew B-5						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.66	\$59.09
4 Laborers	35.10	1123.20	54.00	1728.00		
2 Equip. Oper. (med.)	46.55	744.80	70.25	1124.00		
1 Air Compressor, 250 cfm		177.00		194.70		
2 Breakers, Pavement, 60 lb.		19.60		21.56		
2-50' Air Hoses, 1.5"		12.60		13.86		
1 Crawler Loader, 3 C.Y.		1106.00		1216.60	23.49	25.83
56 L.H., Daily Totals		\$3480.00		\$4755.52	\$62.14	\$84.92
Crew B-5A						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.01	\$58.02
6 Laborers	35.10	1684.80	54.00	2592.00		
2 Equip. Oper. (med.)	46.55	744.80	70.25	1124.00		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
2 Truck Drivers (heavy)	35.30	564.80	53.55	856.80		
1 Air Compressor, 365 cfm		229.00		251.90		
2 Breakers, Pavement, 60 lb.		19.60		21.56		
8-50' Air Hoses, 1"		32.80		36.08		
2 Dump Trucks, 8 C.Y., 220 H.P.		714.80		786.28	10.38	11.41
96 L.H., Daily Totals		\$4645.40		\$6665.82	\$48.39	\$69.44
Crew B-5B						
1 Powderman	\$45.40	\$363.20	\$70.20	\$561.60	\$40.73	\$61.89
2 Equip. Oper. (med.)	46.55	744.80	70.25	1124.00		
3 Truck Drivers (heavy)	35.30	847.20	53.55	1285.20		
1 F.E. Loader, W.M., 2.5 C.Y.		472.40		519.64		
3 Dump Trucks, 12 C.Y., 400 H.P.		1753.80		1929.18		
1 Air Compressor, 365 CFM		229.00		251.90	51.15	56.27
48 L.H., Daily Totals		\$4410.40		\$5671.52	\$91.88	\$118.16
Crew B-5C						
3 Laborers	\$35.10	\$842.40	\$54.00	\$1296.00	\$38.94	\$59.22
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
2 Truck Drivers (heavy)	35.30	564.80	53.55	856.80		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
2 Dump Trucks, 12 C.Y., 400 H.P.		1169.20		1286.12		
1 Crawler Loader, 4 C.Y.		1443.00		1587.30		
1 S.P. Crane, 4x4, 25 Ton		565.20		621.72	49.65	54.61
64 L.H., Daily Totals		\$5669.40		\$7285.14	\$88.58	\$113.83

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-5D						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.24	\$58.39
4 Laborers	35.10	1123.20	54.00	1728.00		
2 Equip. Oper. (med.)	46.55	744.80	70.25	1124.00		
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Air Compressor, 250 cfm		177.00		194.70		
2 Breakers, Pavement, 60 lb.		19.60		21.56		
2 50' Air Hoses, 1.5"		12.60		13.86		
1 Crawler Loader, 3 C.Y.		1106.00		1216.60		
1 Dump Truck, 12 C.Y., 400 H.P.		584.60		643.06	29.68	32.65
64 L.H., Daily Totals		\$4347.00		\$5826.98	\$67.92	\$91.05
Crew B-6						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$38.32	\$58.52
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Backhoe Loader, 48 H.P.		334.00		367.40	13.92	15.31
24 L.H., Daily Totals		\$1253.60		\$1771.80	\$52.23	\$73.83
Crew B-6A						
5 Labor Foreman (outside)	\$37.10	\$148.40	\$57.10	\$228.40	\$40.08	\$61.12
1 Laborer	35.10	280.80	54.00	432.00		
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
1 Vacuum Trk., 5000 Gal.		357.20		392.92	17.86	19.65
20 L.H., Daily Totals		\$1158.80		\$1615.32	\$57.94	\$80.77
Crew B-6B						
2 Labor Foreman (outside)	\$37.10	\$593.60	\$57.10	\$913.60	\$35.77	\$55.03
4 Laborers	35.10	1123.20	54.00	1728.00		
1 S.P. Crane, 4x4, 5 Ton		264.60		291.06		
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10		
1 Butt Fusion Mach., 4"-12" diam.		376.45		414.10	17.75	19.53
48 L.H., Daily Totals		\$2568.85		\$3578.86	\$53.52	\$74.56
Crew B-6C						
2 Labor Foreman (outside)	\$37.10	\$593.60	\$57.10	\$913.60	\$35.77	\$55.03
4 Laborers	35.10	1123.20	54.00	1728.00		
1 S.P. Crane, 4x4, 12 Ton		448.20		493.02		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84		
1 Butt Fusion Mach., 8"-24" diam.		806.15		886.76	31.64	34.80
48 L.H., Daily Totals		\$3235.55		\$4312.23	\$67.41	\$89.84
Crew B-7						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.34	\$57.23
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
1 Brush Chipper, 12", 130 H.P.		283.80		312.18		
1 Crawler Loader, 3 C.Y.		1106.00		1216.60		
2 Chain Saws, gas, 36" Long		87.20		95.92	30.77	33.85
48 L.H., Daily Totals		\$3269.40		\$4371.50	\$68.11	\$91.07
Crew B-7A						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$38.32	\$58.52
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Rake w/Tractor		324.70		357.17		
2 Chain Saws, gas, 18"		54.80		60.28	15.81	17.39
24 L.H., Daily Totals		\$1299.10		\$1821.85	\$54.13	\$75.91

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-7B						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.05	\$56.81
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Brush Chipper, 12", 130 H.P.		283.80		312.18		
1 Crawler Loader, 3 C.Y.		1106.00		1216.60		
2 Chain Saws, gas, 36" Long		87.20		95.92		
1 Dump Truck, 8 C.Y., 220 H.P.		357.40		393.14	32.76	35.81
56 L.H., Daily Totals		\$3909.20		\$5193.04	\$69.81	\$93.04
Crew B-7C						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.06	\$56.82
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Brush Chipper, 12", 130 H.P.		283.80		312.18		
1 Crawler Loader, 3 C.Y.		1106.00		1216.60		
2 Chain Saws, gas, 36" Long		87.20		95.92		
1 Dump Truck, 12 C.Y., 400 H.P.		584.60		643.06	36.81	39.86
56 L.H., Daily Totals		\$4136.40		\$5442.96	\$73.86	\$96.90
Crew B-8						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.03	\$53.52
2 Laborers	35.10	561.60	54.00	864.00		
2 Equip. Oper. (med.)	46.55	744.80	70.25	1124.00		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
2 Truck Drivers (heavy)	35.30	564.80	53.55	856.80		
1 Hyd. Crane, 25 Ton		697.20		766.92		
1 Crawler Loader, 3 C.Y.		1106.00		1216.60		
2 Dump Trucks, 12 C.Y., 400 H.P.		1169.20		1286.12	46.44	49.44
64 L.H., Daily Totals		\$5470.40		\$7069.24	\$85.48	\$108.88
Crew B-9						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.50	\$53.50
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Air Compressor, 250 cfm		177.00		194.70		
2 Breakers, Pavement, 60 lb.		19.60		21.56		
2 50' Air Hoses, 1.5"		12.60		13.86		
40 L.H., Daily Totals		\$1629.20		\$2414.92	\$40.73	\$58.88
Crew B-9A						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$35.17	\$53.17
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Water Tank Trailer, 5000 Gal.		141.00		155.10		
1 Truck Tractor, 220 H.P.		314.80		346.28		
2 50' Discharge Hoses, 3"		6.10		6.71	19.25	20.25
24 L.H., Daily Totals		\$1305.90		\$1800.49	\$54.41	\$73.41
Crew B-9B						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$35.17	\$53.17
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
2 50' Discharge Hoses, 3"		6.10		6.71		
1 Water Tank Trailer, 5000 Gal.		141.00		155.10		
1 Truck Tractor, 220 H.P.		314.80		346.28		
1 Pressure Washer		63.00		69.30	21.87	23.87
24 L.H., Daily Totals		\$1968.90		\$2869.79	\$82.04	\$108.04

Crew No.	Bare Costs		Incl. Subs O&P	Cost Per Labor-Hour	
Crew B-9D	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Man (Outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.50 \$54.62
5 Laborers	35.10	1123.20	54.00	1728.00	
Air Compressor, 250 cfm		177.00		194.70	
Hoses, 1.5"		12.60		13.86	
Red Tampers		52.40		57.64	6.05 6.66
Daily Totals		\$1662.00		\$2451.00	\$41.55 \$61.27
Crew B-10	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
Daily Totals		\$512.80		\$778.00	\$42.73 \$64.83
Crew B-10A	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
Roller Drum, W.B., 7.5 H.P.		171.60		188.76	14.30 15.73
Daily Totals		\$684.40		\$966.76	\$57.03 \$80.56
Crew B-10B	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
30 H.P.		1243.00		1367.30	103.58 113.94
Daily Totals		\$1755.80		\$2145.30	\$146.32 \$178.78
Crew B-10C	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
30 H.P.		1243.00		1367.30	
Winch Roller, Towed, 23 Ton		388.80		427.68	135.98 149.58
Daily Totals		\$2144.60		\$2572.98	\$178.72 \$214.41
Crew B-10D	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
30 H.P.		1243.00		1367.30	
Shear Roller, Towed		420.20		462.22	138.60 152.46
Daily Totals		\$2176.00		\$2607.52	\$181.33 \$217.29
Crew B-10E	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
Roller, 5 Ton		149.20		164.12	12.43 13.68
Daily Totals		\$662.00		\$942.12	\$55.17 \$78.51
Crew B-10F	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
Roller, 10 Ton		227.60		250.36	18.97 20.86
Daily Totals		\$740.40		\$1028.36	\$61.70 \$85.70
Crew B-10G	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
Roller, 240 H.P.		1101.00		1211.10	91.75 100.93
Daily Totals		\$1613.80		\$1989.10	\$134.48 \$165.76

Crew No.	Bare Costs		Incl. Subs O&P	Cost Per Labor-Hour	
Crew B-10H	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
1 Diaphragm Water Pump, 2"		68.60		75.46	
1 -20' Suction Hose, 2"		1.95		2.15	
2 -50' Discharge Hoses, 2"		3.50		3.85	6.17 6.79
12 L.H., Daily Totals		\$586.85		\$859.46	\$48.90 \$71.62
Crew B-10I	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
1 Diaphragm Water Pump, 4"		111.20		122.32	
1 -20' Suction Hose, 4"		3.25		3.58	
2 -50' Discharge Hoses, 4"		9.40		10.34	10.32 11.35
12 L.H., Daily Totals		\$636.65		\$914.24	\$53.05 \$76.19
Crew B-10J	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
1 Centrifugal Water Pump, 3"		73.80		81.18	
1 -20' Suction Hose, 3"		2.85		3.13	
2 -50' Discharge Hoses, 3"		6.10		6.71	6.90 7.59
12 L.H., Daily Totals		\$595.55		\$869.02	\$49.63 \$72.42
Crew B-10K	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
1 Centr. Water Pump, 6"		308.40		339.24	
1 -20' Suction Hose, 6"		11.50		12.65	
2 -50' Discharge Hoses, 6"		24.20		26.62	28.68 31.54
12 L.H., Daily Totals		\$856.90		\$1156.51	\$71.41 \$96.38
Crew B-10L	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
1 Dozer, 80 H.P.		442.40		486.64	36.87 40.55
12 L.H., Daily Totals		\$955.20		\$1264.64	\$79.60 \$105.39
Crew B-10M	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
1 Dozer, 300 H.P.		1718.00		1889.80	143.17 157.48
12 L.H., Daily Totals		\$2230.80		\$2667.80	\$185.90 \$222.32
Crew B-10N	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
1 F.E. Loader, T.M., 1.5 C.Y.		488.60		537.46	40.72 44.79
12 L.H., Daily Totals		\$1001.40		\$1315.46	\$83.45 \$109.62
Crew B-10O	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
1 F.E. Loader, T.M., 2.25 C.Y.		895.20		984.72	74.60 82.06
12 L.H., Daily Totals		\$1408.00		\$1762.72	\$117.33 \$146.89
Crew B-10P	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73 \$64.83
5 Laborer	35.10	140.40	54.00	216.00	
1 Crawler Loader, 3 C.Y.		1106.00		1216.60	92.17 101.38
12 L.H., Daily Totals		\$1618.80		\$1994.60	\$134.90 \$166.22

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-10Q						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
5 Laborer	35.10	140.40	54.00	216.00		
1 Crawler Loader, 4 C.Y.		1443.00		1587.30	120.25	132.28
12 L.H., Daily Totals		\$1955.80		\$2365.30	\$162.98	\$197.11
Crew B-10R						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
5 Laborer	35.10	140.40	54.00	216.00		
1 F.E. Loader, W.M., 1 C.Y.		268.20		295.02	22.35	24.59
12 L.H., Daily Totals		\$781.00		\$1073.02	\$65.08	\$89.42
Crew B-10S						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
5 Laborer	35.10	140.40	54.00	216.00		
1 F.E. Loader, W.M., 1.5 C.Y.		333.80		367.18	27.82	30.60
12 L.H., Daily Totals		\$846.60		\$1145.18	\$70.55	\$95.43
Crew B-10T						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
5 Laborer	35.10	140.40	54.00	216.00		
1 F.E. Loader, W.M., 2.5 C.Y.		472.40		519.64	39.37	43.30
12 L.H., Daily Totals		\$985.20		\$1297.64	\$82.10	\$108.14
Crew B-10U						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
5 Laborer	35.10	140.40	54.00	216.00		
1 F.E. Loader, W.M., 5.5 C.Y.		960.00		1056.00	80.00	88.00
12 L.H., Daily Totals		\$1472.80		\$1834.00	\$122.73	\$152.83
Crew B-10V						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
5 Laborer	35.10	140.40	54.00	216.00		
1 Dozer, 700 H.P.		4235.00		4658.50	352.92	388.21
12 L.H., Daily Totals		\$4747.80		\$5436.50	\$395.65	\$453.04
Crew B-10W						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
5 Laborer	35.10	140.40	54.00	216.00		
1 Dozer, 105 H.P.		550.80		605.88	45.90	50.49
12 L.H., Daily Totals		\$1063.60		\$1383.88	\$88.63	\$115.32
Crew B-10X						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
5 Laborer	35.10	140.40	54.00	216.00		
1 Dozer, 410 H.P.		2272.00		2499.20	189.33	208.27
12 L.H., Daily Totals		\$2784.80		\$3277.20	\$232.07	\$273.10
Crew B-10Y						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
5 Laborer	35.10	140.40	54.00	216.00		
1 Vibr. Roller, Towed, 12 Ton		514.80		566.28	42.90	47.19
12 L.H., Daily Totals		\$1027.60		\$1344.28	\$85.63	\$112.02
Crew B-11A						
1 Equipment Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$40.83	\$62.13
1 Laborer	35.10	280.80	54.00	432.00		
1 Dozer, 200 H.P.		1243.00		1367.30	77.69	85.46
16 L.H., Daily Totals		\$1896.20		\$2361.30	\$118.51	\$147.58

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-11B						
1 Equipment Oper. (light)	\$44.75	\$358.00	\$67.55	\$540.40	\$39.92	\$61.40
1 Laborer	35.10	280.80	54.00	432.00		
1 Air Powered Tamper		26.20		28.82		
1 Air Compressor, 365 cfm		229.00		251.90		
2 50' Air Hoses, 1.5"		12.60		13.86	16.74	18.40
16 L.H., Daily Totals		\$906.60		\$1266.98	\$56.66	\$89.40
Crew B-11C						
1 Equipment Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$40.83	\$62.13
1 Laborer	35.10	280.80	54.00	432.00		
1 Backhoe Loader, 48 H.P.		334.00		367.40	20.88	23.14
16 L.H., Daily Totals		\$987.20		\$1361.40	\$61.70	\$95.40
Crew B-11J						
1 Equipment Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$40.83	\$62.13
1 Laborer	35.10	280.80	54.00	432.00		
1 Grader, 30,000 Lbs.		610.80		671.88		
1 Ripper, beam & 1 shank		81.60		89.76	43.27	47.40
16 L.H., Daily Totals		\$1345.60		\$1755.64	\$84.10	\$115.32
Crew B-11K						
1 Equipment Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$40.83	\$62.13
1 Laborer	35.10	280.80	54.00	432.00		
1 Trencher, Chain Type, 8' D		2848.00		3132.80	178.00	196.00
16 L.H., Daily Totals		\$3501.20		\$4126.80	\$218.80	\$252.00
Crew B-11L						
1 Equipment Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$40.83	\$62.13
1 Laborer	35.10	280.80	54.00	432.00		
1 Grader, 30,000 Lbs.		610.80		671.88	38.17	41.83
16 L.H., Daily Totals		\$1264.00		\$1665.88	\$79.00	\$108.14
Crew B-11M						
1 Equipment Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$40.83	\$62.13
1 Laborer	35.10	280.80	54.00	432.00		
1 Backhoe Loader, 80 H.P.		363.80		400.18	22.74	25.14
16 L.H., Daily Totals		\$1017.00		\$1394.18	\$63.56	\$89.40
Crew B-11N						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.00	\$58.00
2 Equipment Operators (med.)	46.55	744.80	70.25	1124.00		
6 Truck Drivers (hvy.)	35.30	1694.40	53.55	2570.40		
1 F.E. Loader, W.M., 5.5 C.Y.		960.00		1056.00		
1 Dozer, 410 H.P.		2272.00		2499.20		
6 Dump Trucks, Off Hwy., 50 Ton		9408.00		10348.80	175.56	196.00
72 L.H., Daily Totals		\$15376.00		\$18055.20	\$213.56	\$252.00
Crew B-11Q						
1 Equipment Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
5 Laborer	35.10	140.40	54.00	216.00		
1 Dozer, 140 H.P.		817.40		899.14	68.12	74.14
12 L.H., Daily Totals		\$1330.20		\$1677.14	\$110.85	\$147.58
Crew B-11R						
1 Equipment Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
5 Laborer	35.10	140.40	54.00	216.00		
1 Dozer, 200 H.P.		1243.00		1367.30	103.58	114.00
12 L.H., Daily Totals		\$1755.80		\$2145.30	\$146.31	\$175.30

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-11S						
Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
H.P.		1718.00		1889.80		
Drum & 1 shank		81.60		89.76	149.97	164.96
Totals		\$2312.40		\$2757.56	\$192.70	\$229.80
Crew B-11T						
Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
H.P.		2272.00		2499.20		
Drum & 2 shanks		91.80		100.98	196.98	216.68
Totals		\$2876.60		\$3378.18	\$239.72	\$281.51
Crew B-11U						
Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
H.P.		2937.00		3230.70	244.75	269.23
Totals		\$3449.80		\$4008.70	\$287.48	\$334.06
Crew B-11V						
Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
H.P.		2937.00		3230.70	244.75	269.23
Totals		\$3449.80		\$4008.70	\$287.48	\$334.06
Crew B-11W						
Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
H.P.		2937.00		3230.70	244.75	269.23
Totals		\$3449.80		\$4008.70	\$287.48	\$334.06
Crew B-11X						
Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
H.P.		2937.00		3230.70	244.75	269.23
Totals		\$3449.80		\$4008.70	\$287.48	\$334.06
Crew B-11Y						
Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
H.P.		2937.00		3230.70	244.75	269.23
Totals		\$3449.80		\$4008.70	\$287.48	\$334.06
Crew B-11Z						
Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
H.P.		2937.00		3230.70	244.75	269.23
Totals		\$3449.80		\$4008.70	\$287.48	\$334.06
Crew B-12A						
Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
H.P.		2937.00		3230.70	244.75	269.23
Totals		\$3449.80		\$4008.70	\$287.48	\$334.06
Crew B-12B						
Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
H.P.		2937.00		3230.70	244.75	269.23
Totals		\$3449.80		\$4008.70	\$287.48	\$334.06
Crew B-12C						
Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
H.P.		2937.00		3230.70	244.75	269.23
Totals		\$3449.80		\$4008.70	\$287.48	\$334.06

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-12D						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Hyd. Excavator, 3.5 C.Y.		2211.00		2432.10	138.19	152.01
Totals		\$2874.20		\$3441.30	\$179.64	\$215.08
Crew B-12E						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Hyd. Excavator, .5 C.Y.		371.40		408.54	23.21	25.53
Totals		\$1034.60		\$1417.74	\$64.66	\$88.61
Crew B-12F						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Hyd. Excavator, .75 C.Y.		647.20		711.92	40.45	44.49
Totals		\$1310.40		\$1721.12	\$81.90	\$107.57
Crew B-12G						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Crawler Crane, 15 Ton		647.50		712.25		
1 Clamshell Bucket, .5 C.Y.		37.40		41.14	42.81	47.09
Totals		\$1348.10		\$1762.59	\$84.26	\$110.16
Crew B-12H						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Crawler Crane, 25 Ton		1110.00		1221.00		
1 Clamshell Bucket, 1 C.Y.		47.00		51.70	72.31	79.54
Totals		\$1820.20		\$2281.90	\$113.76	\$142.62
Crew B-12I						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Crawler Crane, 20 Ton		832.00		915.20		
1 Dragline Bucket, .75 C.Y.		20.40		22.44	53.27	58.60
Totals		\$1515.60		\$1946.84	\$94.72	\$121.68
Crew B-12J						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Gradall, 5/8 C.Y.		844.00		928.40	52.75	58.02
Totals		\$1507.20		\$1937.60	\$94.20	\$121.10
Crew B-12K						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Gradall, 3 Ton, 1 C.Y.		961.20		1057.32	60.08	66.08
Totals		\$1624.40		\$2066.52	\$101.53	\$129.16
Crew B-12L						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Crawler Crane, 15 Ton		647.50		712.25		
1 F.E. Attachment, .5 C.Y.		57.40		63.14	44.06	48.46
Totals		\$1368.10		\$1784.59	\$85.51	\$111.54

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew B-12M	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Crawler Crane, 20 Ton		832.00		915.20		
1 F.E. Attachment, 7.5 C.Y.		62.20		68.42	55.89	61.48
16 L.H., Daily Totals		\$1557.40		\$1992.82	\$97.34	\$124.55
Crew B-12N	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Crawler Crane, 25 Ton		1110.00		1221.00		
1 F.E. Attachment, 1 C.Y.		68.00		74.80	73.63	80.99
16 L.H., Daily Totals		\$1841.20		\$2305.00	\$115.08	\$144.06
Crew B-12O	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Crawler Crane, 40 Ton		1115.00		1226.50		
1 F.E. Attachment, 1.5 C.Y.		76.80		84.48	74.49	81.94
16 L.H., Daily Totals		\$1855.00		\$2320.18	\$115.94	\$145.01
Crew B-12P	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Crawler Crane, 40 Ton		1115.00		1226.50		
1 Dragline Bucket, 1.5 C.Y.		33.20		36.52	71.76	78.94
16 L.H., Daily Totals		\$1811.40		\$2272.22	\$113.21	\$142.01
Crew B-12Q	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Hyd. Excavator, 5/8 C.Y.		551.80		606.98	34.49	37.94
16 L.H., Daily Totals		\$1215.00		\$1616.18	\$75.94	\$101.01
Crew B-12S	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Hyd. Excavator, 2.5 C.Y.		1652.00		1817.20	103.25	113.58
16 L.H., Daily Totals		\$2315.20		\$2826.40	\$144.70	\$176.65
Crew B-12T	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Crawler Crane, 75 Ton		1423.00		1565.30		
1 F.E. Attachment, 3 C.Y.		99.60		109.56	95.16	104.68
16 L.H., Daily Totals		\$2185.80		\$2684.06	\$136.61	\$167.75
Crew B-12V	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$41.45	\$63.08
1 Laborer	35.10	280.80	54.00	432.00		
1 Crawler Crane, 75 Ton		1423.00		1565.30		
1 Dragline Bucket, 3 C.Y.		51.80		56.98	92.17	101.39
16 L.H., Daily Totals		\$2138.00		\$2631.48	\$133.63	\$164.47
Crew B-12Y	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$39.33	\$60.05
2 Laborers	35.10	561.60	54.00	864.00		
1 Hyd. Excavator, 3.5 C.Y.		2211.00		2432.10	92.13	101.34
24 L.H., Daily Totals		\$3155.00		\$3873.30	\$131.46	\$161.39

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew B-12Z	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$39.33	\$60.05
2 Laborers	35.10	561.60	54.00	864.00		
1 Hyd. Excavator, 2.5 C.Y.		1652.00		1817.20	68.93	
24 L.H., Daily Totals		\$2596.00		\$3258.40	\$108.17	\$135.33
Crew B-13	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.08	
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Hyd. Crane, 25 Ton		697.20		766.92	12.48	
56 L.H., Daily Totals		\$2829.60		\$4026.92	\$90.53	\$113.57
Crew B-13A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.08	
2 Laborers	35.10	561.60	54.00	864.00		
2 Equipment Operators (med.)	46.55	744.80	70.25	1124.00		
2 Truck Drivers (heavy)	35.30	564.80	53.55	856.80		
1 Crawler Crane, 75 Ton		1423.00		1565.30		
1 Crawler Loader, 4 C.Y.		1443.00		1587.30		
2 Dump Trucks, 8 C.Y., 220 H.P.		714.80		786.28	63.94	
56 L.H., Daily Totals		\$5748.80		\$7240.48	\$102.66	\$128.57
Crew B-13B	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.08	
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Hyd. Crane, 55 Ton		1100.00		1210.00	19.64	
56 L.H., Daily Totals		\$3232.40		\$4470.00	\$57.72	\$72.50
Crew B-13C	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.08	
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Crawler Crane, 100 Ton		1628.00		1790.80	29.07	
56 L.H., Daily Totals		\$3760.40		\$5050.80	\$67.15	\$86.81
Crew B-13D	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$41.45	
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Hyd. Excavator, 1 C.Y.		748.60		823.46		
1 Trench Box		113.40		124.74		
16 L.H., Daily Totals		\$1525.20		\$1957.40	\$96.33	\$122.33
Crew B-13E	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$41.45	
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Hyd. Excavator, 1.5 C.Y.		960.40		1056.44		
1 Trench Box		113.40		124.74		
16 L.H., Daily Totals		\$1737.00		\$2190.38	\$106.56	\$135.66
Crew B-13F	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$41.45	
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Hyd. Excavator, 3.5 C.Y.		2211.00		2432.10		
1 Trench Box		113.40		124.74		
16 L.H., Daily Totals		\$2987.60		\$3566.04	\$186.72	\$232.88

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-13G						
1 Equip. Oper. (crane)	\$35.10	\$280.80	\$54.00	\$432.00	\$41.45	\$63.08
1 Hyd. Elevator, 75 C.Y.	47.80	382.40	72.15	577.20		
		647.20		711.92		
		113.40		124.74	47.54	52.29
Totals		\$1423.80		\$1845.86	\$88.99	\$115.37
Crew B-13H						
1 Equip. Oper. (crane)	\$35.10	\$280.80	\$54.00	\$432.00	\$41.45	\$63.08
1 Hyd. Elevator, 8 C.Y.	47.80	382.40	72.15	577.20		
		844.00		928.40		
		113.40		124.74	59.84	65.82
Totals		\$1620.60		\$2062.34	\$101.29	\$128.90
Crew B-13I						
1 Equip. Oper. (crane)	\$35.10	\$280.80	\$54.00	\$432.00	\$41.45	\$63.08
1 Grad. Loader, 1 C.Y.	47.80	382.40	72.15	577.20		
		961.20		1057.32		
		113.40		124.74	67.16	73.88
Totals		\$1737.80		\$2191.26	\$108.61	\$136.95
Crew B-13J						
1 Equip. Oper. (crane)	\$35.10	\$280.80	\$54.00	\$432.00	\$41.45	\$63.08
1 Hyd. Elevator, 2.5 C.Y.	47.80	382.40	72.15	577.20		
		1652.00		1817.20		
		113.40		124.74	110.34	121.37
Totals		\$2428.60		\$2951.14	\$151.79	\$184.45
Crew B-14						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.04	\$56.77
1 Laborer	35.10	1123.20	54.00	1728.00		
1 Dump Truck, 48 H.P.	44.75	358.00	67.55	540.40		
		334.00		367.40	6.96	7.65
Totals		\$2112.00		\$3092.60	\$44.00	\$64.43
Crew B-14A						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$43.57	\$66.10
1 Hyd. Elevator, 4.5 C.Y.	35.10	140.40	54.00	216.00		
		2748.00		3022.80	229.00	251.90
Totals		\$3270.80		\$3816.00	\$272.57	\$318.00
Crew B-14B						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$43.57	\$66.10
1 Hyd. Elevator, 6 C.Y.	35.10	140.40	54.00	216.00		
		3229.00		3551.90	269.08	295.99
Totals		\$3751.80		\$4345.10	\$312.65	\$362.09
Crew B-14C						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$43.57	\$66.10
1 Hyd. Elevator, 7 C.Y.	35.10	140.40	54.00	216.00		
		3304.00		3634.40	275.33	302.87
Totals		\$3826.80		\$4427.60	\$318.90	\$368.97
Crew B-14F						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$43.57	\$66.10
1 Hyd. Elevator, 7 C.Y.	35.10	140.40	54.00	216.00		
		3259.00		3584.90	271.58	298.74
Totals		\$3781.80		\$4378.10	\$315.15	\$364.84

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-14G						
1 Equip. Oper. (crane)	\$47.80	\$382.40	\$72.15	\$577.20	\$43.57	\$66.10
1 Laborer	35.10	140.40	54.00	216.00		
1 Hyd. Shovel, 12 C.Y.		4249.00		4673.90	354.08	389.49
12 L.H., Daily Totals		\$4771.80		\$5467.10	\$397.65	\$455.59
Crew B-14J						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
1 F.E. Loader, 8 C.Y.		1856.00		2041.60	154.67	170.13
12 L.H., Daily Totals		\$2368.80		\$2819.60	\$197.40	\$234.97
Crew B-14K						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$42.73	\$64.83
1 Laborer	35.10	140.40	54.00	216.00		
1 F.E. Loader, 10 C.Y.		2556.00		2811.60	213.00	234.30
12 L.H., Daily Totals		\$3068.80		\$3589.60	\$255.73	\$299.13
Crew B-15						
1 Equipment Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$38.49	\$58.39
1 Laborer	35.10	140.40	54.00	216.00		
2 Truck Drivers (heavy)	35.30	564.80	53.55	856.80		
2 Dump Trucks, 12 C.Y., 400 H.P.		1169.20		1286.12		
1 Dozer, 200 H.P.		1243.00		1367.30	86.15	94.77
28 L.H., Daily Totals		\$3489.80		\$4288.22	\$124.64	\$153.15
Crew B-16						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.65	\$54.66
2 Laborers	35.10	561.60	54.00	864.00		
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Dump Truck, 12 C.Y., 400 H.P.		584.60		643.06	18.27	20.10
32 L.H., Daily Totals		\$1725.40		\$2392.26	\$53.92	\$74.76
Crew B-17						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$37.56	\$57.27
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Backhoe Loader, 48 H.P.		334.00		367.40		
1 Dump Truck, 8 C.Y., 220 H.P.		357.40		393.14	21.61	23.77
32 L.H., Daily Totals		\$1893.40		\$2593.34	\$59.17	\$81.04
Crew B-17A						
2 Labor Foremen (outside)	\$37.10	\$593.60	\$57.10	\$913.60	\$37.76	\$58.17
6 Laborers	35.10	1684.80	54.00	2592.00		
1 Skilled Worker Foreman (out)	47.40	379.20	73.30	586.40		
1 Skilled Worker	45.40	363.20	70.20	561.60		
80 L.H., Daily Totals		\$3020.80		\$4653.60	\$37.76	\$58.17
Crew B-17B						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$37.56	\$57.27
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Backhoe Loader, 48 H.P.		334.00		367.40		
1 Dump Truck, 12 C.Y., 400 H.P.		584.60		643.06	28.71	31.58
32 L.H., Daily Totals		\$2120.60		\$2843.26	\$66.27	\$88.85
Crew B-18						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.77	\$55.03
2 Laborers	35.10	561.60	54.00	864.00		
1 Vibratory Plate, gas, 21"		40.80		44.88	1.70	1.87
24 L.H., Daily Totals		\$899.20		\$1365.68	\$37.47	\$56.90

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew B-19	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Pile Driver Foreman (outside)	\$44.80	\$358.40	\$72.00	\$576.00	\$44.11	\$69.22
4 Pile Drivers	42.80	1369.60	68.80	2201.60		
2 Equip. Oper. (crane)	47.80	764.80	72.15	1154.40		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Crawler Crane, 40 Ton		1115.00		1226.50		
1 Lead, 90' high		124.00		136.40		
1 Hammer, Diesel, 22k ft-lb		592.80		652.08	28.62	31.48
64 L.H., Daily Totals		\$4654.60		\$6444.98	\$72.73	\$100.70
Crew B-19A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Pile Driver Foreman (outside)	\$44.80	\$358.40	\$72.00	\$576.00	\$44.11	\$69.22
4 Pile Drivers	42.80	1369.60	68.80	2201.60		
2 Equip. Oper. (crane)	47.80	764.80	72.15	1154.40		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Crawler Crane, 75 Ton		1423.00		1565.30		
1 Lead, 90' high		124.00		136.40		
1 Hammer, Diesel, 41k ft-lb		686.80		755.48	34.90	38.39
64 L.H., Daily Totals		\$5056.60		\$6887.18	\$79.01	\$107.61
Crew B-19B	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Pile Driver Foreman (outside)	\$44.80	\$358.40	\$72.00	\$576.00	\$44.11	\$69.22
4 Pile Drivers	42.80	1369.60	68.80	2201.60		
2 Equip. Oper. (crane)	47.80	764.80	72.15	1154.40		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Crawler Crane, 40 Ton		1115.00		1226.50		
1 Lead, 90' high		124.00		136.40		
1 Hammer, Diesel, 22k ft-lb		592.80		652.08		
1 Barge, 400 Ton		779.20		857.12	40.80	44.88
64 L.H., Daily Totals		\$5433.80		\$7302.10	\$84.90	\$114.10
Crew B-19C	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Pile Driver Foreman (outside)	\$44.80	\$358.40	\$72.00	\$576.00	\$44.11	\$69.22
4 Pile Drivers	42.80	1369.60	68.80	2201.60		
2 Equip. Oper. (crane)	47.80	764.80	72.15	1154.40		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Crawler Crane, 75 Ton		1423.00		1565.30		
1 Lead, 90' high		124.00		136.40		
1 Hammer, Diesel, 41k ft-lb		686.80		755.48		
1 Barge, 400 Ton		779.20		857.12	47.08	51.79
64 L.H., Daily Totals		\$5835.80		\$7744.30	\$91.18	\$121.00
Crew B-20	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.20	\$60.43
1 Skilled Worker	45.40	363.20	70.20	561.60		
1 Laborer	35.10	280.80	54.00	432.00		
24 L.H., Daily Totals		\$940.80		\$1450.40	\$39.20	\$60.43
Crew B-20A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$42.63	\$64.84
1 Laborer	35.10	280.80	54.00	432.00		
1 Plumber	54.60	436.80	82.35	658.80		
1 Plumber Apprentice	43.70	349.60	65.90	527.20		
32 L.H., Daily Totals		\$1364.00		\$2074.80	\$42.63	\$64.84
Crew B-21	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$40.43	\$62.11
1 Skilled Worker	45.40	363.20	70.20	561.60		
1 Laborer	35.10	280.80	54.00	432.00		
5 Equip. Oper. (crane)	47.80	191.20	72.15	288.60	4.72	5.20
5 S.P. Crane, 4x4, 5 Ton		132.30		145.53		
28 L.H., Daily Totals		\$1264.30		\$1884.53	\$45.15	\$67.30

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew B-21A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$43.66	
1 Laborer	35.10	280.80	54.00	432.00		
1 Plumber	54.60	436.80	82.35	658.80		
1 Plumber Apprentice	43.70	349.60	65.90	527.20		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 S.P. Crane, 4x4, 12 Ton		448.20		493.02	11.21	
40 L.H., Daily Totals		\$2194.60		\$3145.02	\$54.87	
Crew B-21B	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.04	
3 Laborers	35.10	842.40	54.00	1296.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Hyd. Crane, 12 Ton		612.00		673.20	15.30	
40 L.H., Daily Totals		\$2133.60		\$3003.20	\$53.34	
Crew B-21C	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.08	
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
2 Cutting Torches		21.60		23.76		
2 Sets of Gases		172.80		190.08		
1 Lattice Boom Crane, 90 Ton		1497.00		1646.70	30.20	
56 L.H., Daily Totals		\$3823.80		\$5120.54	\$68.78	
Crew B-22	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$40.92	
1 Skilled Worker	45.40	363.20	70.20	561.60		
1 Laborer	35.10	280.80	54.00	432.00		
75 Equip. Oper. (crane)	47.80	286.80	72.15	432.90		
75 S.P. Crane, 4x4, 5 Ton		198.45		218.29	6.62	
30 L.H., Daily Totals		\$1426.05		\$2101.59	\$47.53	
Crew B-22A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$40.10	
1 Skilled Worker	45.40	363.20	70.20	561.60		
2 Laborers	35.10	561.60	54.00	864.00		
1 Equipment Oper. (crane)	47.80	382.40	72.15	577.20		
1 S.P. Crane, 4x4, 5 Ton		264.60		291.06		
1 Butt Fusion Mach., 4'-12" diam.		376.45		414.10	16.03	
40 L.H., Daily Totals		\$2245.05		\$3164.76	\$56.13	
Crew B-22B	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$40.10	
1 Skilled Worker	45.40	363.20	70.20	561.60		
2 Laborers	35.10	561.60	54.00	864.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 S.P. Crane, 4x4, 5 Ton		264.60		291.06		
1 Butt Fusion Mach., 8'-24" diam.		806.15		886.76	26.77	
40 L.H., Daily Totals		\$2674.75		\$3637.43	\$66.97	
Crew B-22C	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Skilled Worker	\$45.40	\$363.20	\$70.20	\$561.60	\$40.25	
1 Laborer	35.10	280.80	54.00	432.00		
1 Butt Fusion Mach., 2'-8" diam.		120.50		132.55	7.53	
16 L.H., Daily Totals		\$764.50		\$1126.15	\$47.78	

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-23						
Laborer (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.50	\$54.62
Equipment	35.10	1123.20	54.00	1728.00		
Oil, 100 Gallons		2441.00		2685.10		
Flare, 3 Ton		264.40		290.84	67.64	74.40
Totals		\$4125.40		\$5160.74	\$103.14	\$129.02
Crew B-23A						
Laborer (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.58	\$60.45
Equipment	35.10	280.80	54.00	432.00		
Oil, 100 Gallons	46.55	372.40	70.25	562.00		
Flare, 3/4 Ton		2441.00		2685.10		
Flare, 3/4 Ton		127.00		139.70	107.00	117.70
Totals		\$3518.00		\$4275.60	\$146.58	\$178.15
Crew B-23B						
Laborer (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.58	\$60.45
Equipment	35.10	280.80	54.00	432.00		
Oil, 100 Gallons	46.55	372.40	70.25	562.00		
Flare, 3/4 Ton		2441.00		2685.10		
Flare, 3/4 Ton		127.00		139.70		
Concrete Pump, 6"		308.40		339.24	119.85	131.84
Totals		\$3826.40		\$4614.84	\$159.43	\$192.29
Crew B-24						
Cement Finisher	\$42.35	\$338.80	\$62.30	\$498.40	\$40.52	\$61.38
Equipment	35.10	280.80	54.00	432.00		
Oil, 100 Gallons	44.10	352.80	67.85	542.80		
Totals		\$972.40		\$1473.20	\$40.52	\$61.38
Crew B-25						
Laborer (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.40	\$58.71
Equipment	35.10	1965.60	54.00	3024.00		
Oil, 100 Gallons	46.55	1117.20	70.25	1686.00		
Asphalt Paver, 130 H.P.		1996.00		2195.60		
Roller, 10 Ton		227.60		250.36		
Roller, 12 Ton		313.20		344.52	28.83	31.71
Totals		\$5916.40		\$7957.28	\$67.23	\$90.42
Crew B-25B						
Laborer (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.08	\$59.67
Equipment	35.10	1965.60	54.00	3024.00		
Oil, 100 Gallons	46.55	1489.60	70.25	2248.00		
Asphalt Paver, 130 H.P.		1996.00		2195.60		
Roller, 10 Ton		455.20		500.72		
Roller, 12 Ton		313.20		344.52	28.80	31.68
Totals		\$6516.40		\$8769.64	\$67.88	\$91.35
Crew B-25C						
Laborer (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.25	\$59.93
Equipment	35.10	842.40	54.00	1296.00		
Oil, 100 Gallons	46.55	744.80	70.25	1124.00		
Asphalt Paver, 130 H.P.		1996.00		2195.60		
Roller, 10 Ton		227.60		250.36	46.33	50.96
Totals		\$4107.60		\$5322.76	\$85.58	\$110.89

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-26						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.30	\$60.21
6 Laborers	35.10	1684.80	54.00	2592.00		
2 Equip. Oper. (med.)	46.55	744.80	70.25	1124.00		
1 Rodman (reinf.)	49.10	392.80	78.40	627.20		
1 Cement Finisher	42.35	338.80	62.30	498.40		
1 Grader, 30,000 Lbs.		610.80		671.88		
1 Paving Mach. & Equip.		2531.00		2784.10	35.70	39.27
88 L.H., Daily Totals		\$6599.80		\$8754.38	\$75.00	\$99.48
Crew B-26A						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.30	\$60.21
6 Laborers	35.10	1684.80	54.00	2592.00		
2 Equip. Oper. (med.)	46.55	744.80	70.25	1124.00		
1 Rodman (reinf.)	49.10	392.80	78.40	627.20		
1 Cement Finisher	42.35	338.80	62.30	498.40		
1 Grader, 30,000 Lbs.		610.80		671.88		
1 Paving Mach. & Equip.		2531.00		2784.10		
1 Concrete Saw		148.00		162.80	37.38	41.12
88 L.H., Daily Totals		\$6747.80		\$8917.18	\$76.68	\$101.33
Crew B-26B						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.90	\$61.05
6 Laborers	35.10	1684.80	54.00	2592.00		
3 Equip. Oper. (med.)	46.55	1117.20	70.25	1686.00		
1 Rodman (reinf.)	49.10	392.80	78.40	627.20		
1 Cement Finisher	42.35	338.80	62.30	498.40		
1 Grader, 30,000 Lbs.		610.80		671.88		
1 Paving Mach. & Equip.		2531.00		2784.10		
1 Concrete Pump, 110' Boom		941.40		1035.54	42.53	46.79
96 L.H., Daily Totals		\$7913.60		\$10351.92	\$82.43	\$107.83
Crew B-27						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.60	\$54.77
3 Laborers	35.10	842.40	54.00	1296.00		
1 Berm Machine		280.00		308.00	8.75	9.63
32 L.H., Daily Totals		\$1419.20		\$2060.80	\$44.35	\$64.40
Crew B-28						
2 Carpenters	\$44.10	\$705.60	\$67.85	\$1085.60	\$41.10	\$63.23
1 Laborer	35.10	280.80	54.00	432.00		
88 L.H., Daily Totals		\$986.40		\$1517.60	\$41.10	\$63.23
Crew B-29						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.08	\$58.21
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Gradall, 5/8 C.Y.		844.00		928.40	15.07	16.58
56 L.H., Daily Totals		\$2976.40		\$4188.40	\$53.15	\$74.79
Crew B-30						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$39.05	\$59.12
2 Truck Drivers (heavy)	35.30	564.80	53.55	856.80		
1 Hyd. Excavator, 1.5 C.Y.		960.40		1056.44		
2 Dump Trucks, 12 C.Y., 400 H.P.		1169.20		1286.12	88.73	97.61
24 L.H., Daily Totals		\$3066.80		\$3761.36	\$127.78	\$156.72

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew B-31	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.30	\$57.39
3 Laborers	35.10	842.40	54.00	1296.00		
1 Carpenter	44.10	352.80	67.85	542.80		
1 Air Compressor, 250 cfm		177.00		194.70		
1 Sheeting Driver		5.75		6.33		
2-50' Air Hoses, 1.5"		12.60		13.86	4.88	5.37
40 L.H., Daily Totals		\$1687.35		\$2510.49	\$42.18	\$62.76
Crew B-32	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$43.69	\$66.19
3 Equip. Oper. (med.)	46.55	1117.20	70.25	1686.00		
1 Grader, 30,000 Lbs.		610.80		671.88		
1 Tandem Roller, 10 Ton		227.60		250.36		
1 Dozer, 200 H.P.		1243.00		1367.30	65.04	71.55
32 L.H., Daily Totals		\$3479.40		\$4407.54	\$108.73	\$137.74
Crew B-32A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$42.73	\$64.83
2 Equip. Oper. (med.)	46.55	744.80	70.25	1124.00		
1 Grader, 30,000 Lbs.		610.80		671.88		
1 Roller, Vibratory, 25 Ton		640.20		704.22	52.13	57.34
24 L.H., Daily Totals		\$2276.60		\$2932.10	\$94.86	\$122.17
Crew B-32B	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$42.73	\$64.83
2 Equip. Oper. (med.)	46.55	744.80	70.25	1124.00		
1 Dozer, 200 H.P.		1243.00		1367.30		
1 Roller, Vibratory, 25 Ton		640.20		704.22	78.47	86.31
24 L.H., Daily Totals		\$2908.80		\$3627.52	\$121.20	\$151.15
Crew B-32C	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$41.16	\$62.64
2 Laborers	35.10	561.60	54.00	864.00		
3 Equip. Oper. (med.)	46.55	1117.20	70.25	1686.00		
1 Grader, 30,000 Lbs.		610.80		671.88		
1 Tandem Roller, 10 Ton		227.60		250.36		
1 Dozer, 200 H.P.		1243.00		1367.30	43.36	47.70
48 L.H., Daily Totals		\$4057.00		\$5296.34	\$84.52	\$110.34
Crew B-33A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$43.28	\$65.61
5 Laborer	35.10	140.40	54.00	216.00		
25 Equip. Oper. (med.)	46.55	93.10	70.25	140.50		
1 Scraper, Towed, 7 C.Y.		108.20		119.02		
1.25 Dozers, 300 H.P.		2147.50		2362.25	161.12	177.23
14 L.H., Daily Totals		\$2861.60		\$3399.77	\$204.40	\$242.84
Crew B-33B	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$43.28	\$65.61
5 Laborer	35.10	140.40	54.00	216.00		
25 Equip. Oper. (med.)	46.55	93.10	70.25	140.50		
1 Scraper, Towed, 10 C.Y.		139.20		153.12		
1.25 Dozers, 300 H.P.		2147.50		2362.25	163.34	179.67
14 L.H., Daily Totals		\$2892.60		\$3433.87	\$206.61	\$245.28

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew B-33C	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$43.28	\$65.61
5 Laborer	35.10	140.40	54.00	216.00		
25 Equip. Oper. (med.)	46.55	93.10	70.25	140.50		
1 Scraper, Towed, 15 C.Y.		156.80		172.48		
1.25 Dozers, 300 H.P.		2147.50		2362.25	164.50	
14 L.H., Daily Totals		\$2910.20		\$3453.23	\$207.80	\$245.28
Crew B-33D	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$43.28	\$65.61
5 Laborer	35.10	140.40	54.00	216.00		
25 Equip. Oper. (med.)	46.55	93.10	70.25	140.50		
1 S.P. Scraper, 14 C.Y.		1537.00		1690.70		
25 Dozer, 300 H.P.		429.50		472.45	140.46	
14 L.H., Daily Totals		\$2572.40		\$3081.65	\$162.74	\$192.13
Crew B-33E	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$43.28	\$65.61
5 Laborer	35.10	140.40	54.00	216.00		
25 Equip. Oper. (med.)	46.55	93.10	70.25	140.50		
1 S.P. Scraper, 21 C.Y.		1974.00		2171.40		
25 Dozer, 300 H.P.		429.50		472.45	171.68	
14 L.H., Daily Totals		\$3009.40		\$3562.35	\$214.96	\$254.96
Crew B-33F	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$43.28	\$65.61
5 Laborer	35.10	140.40	54.00	216.00		
25 Equip. Oper. (med.)	46.55	93.10	70.25	140.50		
1 Elev. Scraper, 11 C.Y.		1105.00		1215.50		
25 Dozer, 300 H.P.		429.50		472.45	109.61	
14 L.H., Daily Totals		\$2140.40		\$2606.45	\$152.86	\$182.86
Crew B-33G	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$43.28	\$65.61
5 Laborer	35.10	140.40	54.00	216.00		
25 Equip. Oper. (med.)	46.55	93.10	70.25	140.50		
1 Elev. Scraper, 22 C.Y.		2099.00		2308.90		
25 Dozer, 300 H.P.		429.50		472.45	180.61	
14 L.H., Daily Totals		\$3134.40		\$3699.85	\$223.89	\$263.89
Crew B-33H	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
5 Laborer	\$35.10	\$140.40	\$54.00	\$216.00	\$43.28	\$65.61
1 Equipment Operator (med.)	46.55	372.40	70.25	562.00		
25 Equipment Operator (med.)	46.55	93.10	70.25	140.50		
1 S.P. Scraper, 44 C.Y.		3768.00		4144.80		
25 Dozer, 410 H.P.		568.00		624.80	309.71	
14 L.H., Daily Totals		\$4941.90		\$5688.10	\$352.99	\$412.99
Crew B-33J	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equipment Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$46.55	\$65.61
1 S.P. Scraper, 14 C.Y.		1537.00		1690.70		
8 L.H., Daily Totals		\$1909.40		\$2252.70	\$238.68	\$275.68
Crew B-33K	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equipment Operator (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$43.28	\$65.61
25 Equipment Operator (med.)	46.55	93.10	70.25	140.50		
5 Laborer	35.10	140.40	54.00	216.00		
1 S.P. Scraper, 31 C.Y.		2868.00		3154.80		
25 Dozer, 410 H.P.		568.00		624.80	245.43	
14 L.H., Daily Totals		\$4041.90		\$4698.10	\$286.70	\$336.70

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-34A						
Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
Dump Truck, 8 C.Y., 220 H.P.		357.40		393.14	44.67	49.14
Daily Totals		\$639.80		\$821.54	\$79.97	\$102.69
Crew B-34B						
Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
Dump Truck, 12 C.Y., 400 H.P.		584.60		643.06	73.08	80.38
Daily Totals		\$867.00		\$1071.46	\$108.38	\$133.93
Crew B-34C						
Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
Tractor, 6x4, 380 H.P.		522.20		574.42		
Dump Trailer, 16.5 C.Y.		123.20		135.52	80.67	88.74
Daily Totals		\$927.80		\$1138.34	\$115.97	\$142.29
Crew B-34D						
Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
Tractor, 6x4, 380 H.P.		522.20		574.42		
Dump Trailer, 20 C.Y.		137.80		151.58	82.50	90.75
Daily Totals		\$942.40		\$1154.40	\$117.80	\$144.30
Crew B-34E						
Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
Dump Truck, Off Hwy., 25 Ton		1271.00		1398.10	158.88	174.76
Daily Totals		\$1553.40		\$1826.50	\$194.18	\$228.31
Crew B-34F						
Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
Dump Truck, Off Hwy., 35 Ton		1157.00		1272.70	144.63	159.09
Daily Totals		\$1439.40		\$1701.10	\$179.93	\$212.64
Crew B-34G						
Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
Dump Truck, Off Hwy., 50 Ton		1568.00		1724.80	196.00	215.60
Daily Totals		\$1850.40		\$2153.20	\$231.30	\$269.15
Crew B-34H						
Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
Dump Truck, Off Hwy., 65 Ton		1572.00		1729.20	196.50	216.15
Daily Totals		\$1854.40		\$2157.60	\$231.80	\$269.70
Crew B-34I						
Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
Dump Truck, 18 C.Y., 450 H.P.		745.00		819.50	93.13	102.44
Daily Totals		\$1027.40		\$1247.90	\$128.43	\$155.99
Crew B-34J						
Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
Dump Truck, Off Hwy., 100 Ton		2071.00		2278.10	258.88	284.76
Daily Totals		\$2353.40		\$2706.50	\$294.18	\$338.31
Crew B-34K						
Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
Tractor, 6x4, 450 H.P.		635.00		698.50		
Dump Trailer, 75 Ton		213.00		234.30	106.00	116.60
Daily Totals		\$1130.40		\$1361.20	\$141.30	\$170.15

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-34L						
1 Equip. Oper. (light)	\$44.75	\$358.00	\$67.55	\$540.40	\$44.75	\$67.55
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10	26.38	29.01
8 L.H., Daily Totals		\$569.00		\$772.50	\$71.13	\$96.56
Crew B-34M						
1 Equip. Oper. (light)	\$44.75	\$358.00	\$67.55	\$540.40	\$44.75	\$67.55
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	33.05	36.35
8 L.H., Daily Totals		\$622.40		\$831.24	\$77.80	\$103.91
Crew B-34N						
1 Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
1 Dump Truck, 8 C.Y., 220 H.P.		357.40		393.14		
1 Flatbed Trailer, 40 Ton		147.00		161.70	63.05	69.36
8 L.H., Daily Totals		\$786.80		\$983.24	\$98.35	\$122.91
Crew B-34P						
1 Pipe Fitter	\$55.70	\$445.60	\$84.00	\$672.00	\$45.53	\$68.78
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84		
1 Backhoe Loader, 48 H.P.		334.00		367.40	24.93	27.43
24 L.H., Daily Totals		\$1691.20		\$2309.04	\$70.47	\$96.21
Crew B-34Q						
1 Pipe Fitter	\$55.70	\$445.60	\$84.00	\$672.00	\$45.95	\$69.42
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Flatbed Trailer, 25 Ton		108.60		119.46		
1 Dump Truck, 8 C.Y., 220 H.P.		357.40		393.14		
1 Hyd. Crane, 25 Ton		697.20		766.92	48.47	53.31
24 L.H., Daily Totals		\$2266.00		\$2945.52	\$94.42	\$122.73
Crew B-34R						
1 Pipe Fitter	\$55.70	\$445.60	\$84.00	\$672.00	\$45.95	\$69.42
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Flatbed Trailer, 25 Ton		108.60		119.46		
1 Dump Truck, 8 C.Y., 220 H.P.		357.40		393.14		
1 Hyd. Crane, 25 Ton		697.20		766.92		
1 Hyd. Excavator, 1 C.Y.		748.60		823.46	79.66	87.62
24 L.H., Daily Totals		\$3014.60		\$3768.98	\$125.61	\$157.04
Crew B-34S						
2 Pipe Fitters	\$55.70	\$891.20	\$84.00	\$1344.00	\$48.63	\$73.42
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Flatbed Trailer, 40 Ton		147.00		161.70		
1 Truck Tractor, 6x4, 380 H.P.		522.20		574.42		
1 Hyd. Crane, 80 Ton		1554.00		1709.40		
1 Hyd. Excavator, 2 C.Y.		1253.00		1378.30	108.63	119.49
32 L.H., Daily Totals		\$5032.20		\$6173.42	\$157.26	\$192.92
Crew B-34T						
2 Pipe Fitters	\$55.70	\$891.20	\$84.00	\$1344.00	\$48.63	\$73.42
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Flatbed Trailer, 40 Ton		147.00		161.70		
1 Truck Tractor, 6x4, 380 H.P.		522.20		574.42		
1 Hyd. Crane, 80 Ton		1554.00		1709.40	69.47	76.42
32 L.H., Daily Totals		\$3779.20		\$4795.12	\$118.10	\$149.85

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew B-35	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$43.54	\$66.34
1 Skilled Worker	45.40	363.20	70.20	561.60		
1 Welder (plumber)	54.60	436.80	82.35	658.80		
1 Laborer	35.10	280.80	54.00	432.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Welder, electric, 300 amp		36.90		40.59		
1 Hyd. Excavator, .75 C.Y.		647.20		711.92	14.25	15.68
48 L.H., Daily Totals		\$2774.10		\$3936.91	\$57.79	\$82.02
Crew B-35A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$42.34	\$64.58
2 Laborers	35.10	561.60	54.00	864.00		
1 Skilled Worker	45.40	363.20	70.20	561.60		
1 Welder (plumber)	54.60	436.80	82.35	658.80		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Welder, gas engine, 300 amp		121.60		133.76		
1 Crawler Crane, 75 Ton		1423.00		1565.30	27.58	30.34
56 L.H., Daily Totals		\$3915.40		\$5315.46	\$69.92	\$94.92
Crew B-36	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$40.08	\$61.12
2 Laborers	35.10	561.60	54.00	864.00		
2 Equip. Oper. (med.)	46.55	744.80	70.25	1124.00		
1 Dozer, 200 H.P.		1243.00		1367.30		
1 Aggregate Spreader		36.80		40.48		
1 Tandem Roller, 10 Ton		227.60		250.36	37.69	41.45
40 L.H., Daily Totals		\$3110.60		\$4102.94	\$77.77	\$102.57
Crew B-36A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$41.93	\$63.73
2 Laborers	35.10	561.60	54.00	864.00		
4 Equip. Oper. (med.)	46.55	1489.60	70.25	2248.00		
1 Dozer, 200 H.P.		1243.00		1367.30		
1 Aggregate Spreader		36.80		40.48		
1 Tandem Roller, 10 Ton		227.60		250.36		
1 Roller, Pneum. Whl, 12 Ton		313.20		344.52	32.51	35.76
56 L.H., Daily Totals		\$4168.60		\$5571.46	\$74.44	\$99.49
Crew B-36B	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$41.10	\$62.46
2 Laborers	35.10	561.60	54.00	864.00		
4 Equip. Oper. (med.)	46.55	1489.60	70.25	2248.00		
1 Truck Driver, Heavy	35.30	282.40	53.55	428.40		
1 Grader, 30,000 Lbs.		610.80		671.88		
1 F.E. Loader, crt, 1.5 C.Y.		598.20		658.02		
1 Dozer, 300 H.P.		1718.00		1889.80		
1 Roller, Vibratory, 25 Ton		640.20		704.22		
1 Truck Tractor, 6x4, 450 H.P.		635.00		698.50		
1 Water Tank Trailer, 5000 Gal.		141.00		155.10	67.86	74.65
16 L.H., Daily Totals		\$6973.60		\$8774.72	\$108.96	\$137.11

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew B-36C	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$42.41	\$64.58
3 Equip. Oper. (med.)	46.55	1117.20	70.25	1686.00		
1 Truck Driver, Heavy	35.30	282.40	53.55	428.40		
1 Grader, 30,000 Lbs.		610.80		671.88		
1 Dozer, 300 H.P.		1718.00		1889.80		
1 Roller, Vibratory, 25 Ton		640.20		704.22		
1 Truck Tractor, 6x4, 450 H.P.		635.00		698.50		
1 Water Tank Trailer, 5000 Gal.		141.00		155.10	98.63	110.00
40 L.H., Daily Totals		\$5441.40		\$6690.70	\$136.04	\$166.00
Crew B-36D	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$44.19	\$66.34
3 Equip. Oper. (medium)	46.55	1117.20	70.25	1686.00		
1 Grader, 30,000 Lbs.		610.80		671.88		
1 Dozer, 300 H.P.		1718.00		1889.80		
1 Roller, Vibratory, 25 Ton		640.20		704.22	92.78	105.00
32 L.H., Daily Totals		\$4383.00		\$5408.70	\$136.97	\$166.00
Crew B-37	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.04	\$58.00
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Tandem Roller, 5 Ton		149.20		164.12	3.11	3.70
48 L.H., Daily Totals		\$1927.20		\$2889.32	\$40.15	\$61.12
Crew B-37A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$34.85	\$54.00
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10		
1 Tar Kettle, T.M.		77.20		84.92	12.01	14.00
24 L.H., Daily Totals		\$1124.60		\$1597.82	\$46.86	\$70.00
Crew B-37B	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
3 Laborers	\$35.10	\$842.40	\$54.00	\$1296.00	\$34.94	\$54.00
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10		
1 Tar Kettle, T.M.		77.20		84.92	9.01	10.00
32 L.H., Daily Totals		\$1405.40		\$2029.82	\$43.92	\$66.00
Crew B-37C	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$34.72	\$54.00
2 Truck Drivers (light)	34.35	549.60	52.10	833.60		
2 Flatbed Trucks, Gas, 1.5 Ton		422.00		464.20		
1 Tar Kettle, T.M.		77.20		84.92	15.60	18.00
32 L.H., Daily Totals		\$1610.40		\$2246.72	\$50.33	\$72.00
Crew B-37D	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$34.73	\$54.00
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Pickup Truck, 3/4 Ton		127.00		139.70	7.94	9.00
16 L.H., Daily Totals		\$682.60		\$988.50	\$42.66	\$66.00

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-37E						
Laborer	\$35.10	\$842.40	\$54.00	\$1296.00	\$37.90	\$57.71
Equip. (light)	44.75	358.00	67.55	540.40		
Equip. (medium)	46.55	372.40	70.25	562.00		
Equip. (light)	34.35	549.60	52.10	833.60		
Flasher		13.60		14.96		
Law		148.00		162.80		
Rotary Hammer Drill		22.55		24.81		
Mill Bit		3.15		3.46		
Load Steer, 30 H.P., gas		159.60		175.56		
Hammer Attach.		116.25		127.88		
Rate, gas, 18"		32.20		35.42		
Backs, Gas, 1.5 Ton		422.00		464.20	16.38	18.02
L.H. Daily Totals		\$3039.75		\$4241.09	\$54.28	\$75.73
Crew B-37F						
Laborer	\$35.10	\$842.40	\$54.00	\$1296.00	\$34.91	\$53.52
Equip. (light)	34.35	274.80	52.10	416.80		
Flasher		13.60		14.96		
Compressor, 10 C.F.		160.60		176.66		
Air Compressor, 60 cfm		120.40		132.44		
Alse, 3/4"		3.05		3.36		
Grade (oper)		7.60		8.36		
Back, Gas, 1.5 Ton		211.00		232.10	16.13	17.75
L.H. Daily Totals		\$1633.45		\$2280.68	\$51.05	\$71.27
Crew B-37G						
Laborer (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.04	\$56.77
Equip. (light)	35.10	1123.20	54.00	1728.00		
Equip. (light)	44.75	358.00	67.55	540.40		
Equip. (light)		280.00		308.00		
Roller, 5 Ton		149.20		164.12	8.94	9.84
L.H. Daily Totals		\$2207.20		\$3197.32	\$45.98	\$66.61
Crew B-38						
Laborer (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.72	\$60.58
Laborer	35.10	561.60	54.00	864.00		
Equip. (light)	44.75	358.00	67.55	540.40		
Equip. (med.)	46.55	372.40	70.25	562.00		
Back Loader, 48 H.P.		334.00		367.40		
Hyd. Hammer, (1200 lb.)		178.40		196.24		
FE Hammer, 4 C.Y.		611.00		672.10		
Hammer, Bucket		59.00		64.90	29.56	32.52
L.H. Daily Totals		\$2771.20		\$3723.84	\$69.28	\$93.10
Crew B-39						
Laborer (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.04	\$56.77
Laborer	35.10	1123.20	54.00	1728.00		
Equip. (light)	44.75	358.00	67.55	540.40		
Air Compressor, 250 cfm		177.00		194.70		
Back, Pavement, 60 lb.		19.60		21.56		
Back, 1.5"		12.60		13.86	4.36	4.79
L.H. Daily Totals		\$1987.20		\$2955.32	\$41.40	\$61.57
Crew B-40						
Laborer Foreman (outside)	\$44.80	\$358.40	\$72.00	\$576.00	\$44.11	\$69.22
Pile Drivers	42.80	1369.60	68.80	2201.60		
Equip. (crane)	47.80	764.80	72.15	1154.40		
Equip. Oiler	41.25	330.00	62.25	498.00		
Crane, 40 Ton		1115.00		1226.50		
Hammer & Gen.		2335.00		2568.50	53.91	59.30
L.H. Daily Totals		\$6272.80		\$8225.00	\$98.01	\$128.52

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-40B						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.58	\$58.92
3 Laborers	35.10	842.40	54.00	1296.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Lattice Boom Crane, 40 Ton		1163.00		1279.30	24.23	26.65
48 L.H., Daily Totals		\$3014.60		\$4107.30	\$62.80	\$85.57
Crew B-41						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$36.32	\$55.76
4 Laborers	35.10	1123.20	54.00	1728.00		
.25 Equip. Oper. (crane)	47.80	95.60	72.15	144.30		
.25 Equip. Oper. Oiler	41.25	82.50	62.25	124.50		
.25 Crawler Crane, 40 Ton		278.75		306.63	6.34	6.97
44 L.H., Daily Totals		\$1876.85		\$2760.22	\$42.66	\$62.73
Crew B-42						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.49	\$61.97
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Welder	49.35	394.80	88.25	706.00		
1 Hyd. Crane, 25 Ton		697.20		766.92		
1 Welder, gas engine, 300 amp		121.60		133.76		
1 Horiz. Boring Csg. Mch.		447.60		492.36	19.79	21.77
64 L.H., Daily Totals		\$3793.60		\$5359.04	\$59.27	\$83.74
Crew B-43						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.58	\$58.92
3 Laborers	35.10	842.40	54.00	1296.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Drill Rig, Truck-Mounted		2441.00		2685.10	50.85	55.94
48 L.H., Daily Totals		\$4292.60		\$5513.10	\$89.43	\$114.86
Crew B-44						
1 Pile Driver Foreman (outside)	\$44.80	\$358.40	\$72.00	\$576.00	\$43.34	\$68.19
4 Pile Drivers	42.80	1369.60	68.80	2201.60		
2 Equip. Oper. (crane)	47.80	764.80	72.15	1154.40		
1 Laborer	35.10	280.80	54.00	432.00		
1 Crawler Crane, 40 Ton		1115.00		1226.50		
1 Lead, 60" high		73.60		80.96		
1 Hammer, diesel, 15K ft.-lbs.		591.40		650.54	27.81	30.59
64 L.H., Daily Totals		\$4553.60		\$6322.00	\$71.15	\$98.78
Crew B-45						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$40.92	\$61.90
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Dist. Tanker, 3000 Gallon		306.00		336.60		
1 Truck Tractor, 6x4, 380 H.P.		522.20		574.42	51.76	56.94
16 L.H., Daily Totals		\$1483.00		\$1901.42	\$92.69	\$118.84
Crew B-46						
1 Pile Driver Foreman (outside)	\$44.80	\$358.40	\$72.00	\$576.00	\$39.28	\$61.93
2 Pile Drivers	42.80	684.80	68.80	1100.80		
3 Laborers	35.10	842.40	54.00	1296.00		
1 Chain Saw, gas, 36" Long		43.60		47.96	.91	1.00
48 L.H., Daily Totals		\$1929.20		\$3020.76	\$40.19	\$62.93

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew B-47	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Blast Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.98	\$59.55
1 Driller	35.10	280.80	54.00	432.00		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Air Track Drill, 4"		937.20		1030.92		
1 Air Compressor, 600 cfm		467.60		514.36		
2-50' Air Hoses, 3"		29.80		32.78	59.77	65.75
24 L.H., Daily Totals		\$2370.20		\$3007.26	\$98.76	\$125.30
Crew B-47A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Drilling Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$42.05	\$63.83
1 Equip. Oper. (heavy)	47.80	382.40	72.15	577.20		
1 Oiler	41.25	330.00	62.25	498.00		
1 Air Track Drill, 5"		1088.00		1196.80	45.33	49.87
24 L.H., Daily Totals		\$2097.20		\$2728.80	\$87.38	\$113.70
Crew B-47C	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$39.92	\$60.77
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Air Compressor, 750 cfm		474.80		522.28		
2-50' Air Hoses, 3"		29.80		32.78		
1 Air Track Drill, 4"		937.20		1030.92	90.11	99.12
16 L.H., Daily Totals		\$2080.60		\$2558.38	\$130.04	\$159.90
Crew B-47E	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.60	\$54.77
3 Laborers	35.10	842.40	54.00	1296.00		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	8.26	9.09
32 L.H., Daily Totals		\$1403.60		\$2043.64	\$43.86	\$63.86
Crew B-47G	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.01	\$58.16
2 Laborers	35.10	561.60	54.00	864.00		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Air Track Drill, 4"		937.20		1030.92		
1 Air Compressor, 600 cfm		467.60		514.36		
2-50' Air Hoses, 3"		29.80		32.78		
1 Gunite Pump Rig		280.40		308.44	53.59	58.95
32 L.H., Daily Totals		\$2931.40		\$3747.70	\$91.61	\$117.12
Crew B-47H	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Skilled Worker Foreman (out)	\$47.40	\$379.20	\$73.30	\$586.40	\$45.90	\$70.97
3 Skilled Workers	45.40	1089.60	70.20	1684.80		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	8.26	9.09
32 L.H., Daily Totals		\$1733.20		\$2562.04	\$54.16	\$80.06
Crew B-48	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.46	\$60.15
3 Laborers	35.10	842.40	54.00	1296.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Centr. Water Pump, 6"		308.40		339.24		
1-20' Suction Hose, 6"		11.50		12.65		
1-50' Discharge Hose, 6"		12.10		13.31		
1 Drill Rig, Truck-Mounted		2441.00		2685.10	49.52	54.47
56 L.H., Daily Totals		\$4982.60		\$6418.70	\$88.97	\$114.62

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew B-49	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$40.99	\$61.99
3 Laborers	35.10	842.40	54.00	1296.00		
2 Equip. Oper. (crane)	47.80	764.80	72.15	1154.40		
2 Equip. Oper. Oilers	41.25	660.00	62.25	996.00		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
2 Pike Drivers	42.80	684.80	68.80	1100.80		
1 Hyd. Crane, 25 Ton		697.20		766.92		
1 Centr. Water Pump, 6"		308.40		339.24		
1-20' Suction Hose, 6"		11.50		12.65		
1-50' Discharge Hose, 6"		12.10		13.31		
1 Drill Rig, Truck-Mounted		2441.00		2685.10	39.43	43.93
88 L.H., Daily Totals		\$7077.00		\$9361.62	\$80.43	\$88.43
Crew B-50	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
2 Pike Driver Foremen (outside)	\$44.80	\$716.80	\$72.00	\$1152.00	\$42.04	\$63.04
6 Pike Drivers	42.80	2054.40	68.80	3302.40		
2 Equip. Oper. (crane)	47.80	764.80	72.15	1154.40		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
3 Laborers	35.10	842.40	54.00	1296.00		
1 Crawler Crane, 40 Ton		1115.00		1226.50		
1 Lead, 60' high		73.60		80.96		
1 Hammer, diesel, 15K ft.-lbs.		591.40		650.54		
1 Air Compressor, 600 cfm		467.60		514.36		
2-50' Air Hoses, 3"		29.80		32.78		
1 Chain Saw, gas, 36" Long		43.60		47.96	20.72	22.72
112 L.H., Daily Totals		\$7029.40		\$9955.90	\$62.76	\$68.76
Crew B-51	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.31	\$54.31
4 Laborers	35.10	1123.20	54.00	1728.00		
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10	4.40	4.80
48 L.H., Daily Totals		\$1905.80		\$2833.70	\$39.70	\$48.70
Crew B-52	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$40.81	\$61.81
1 Carpenter	44.10	352.80	67.85	542.80		
3 Laborers	35.10	842.40	54.00	1296.00		
1 Cement Finisher	42.35	338.80	62.30	498.40		
.5 Rodman (reinf.)	49.10	196.40	78.40	313.60		
.5 Equip. Oper. (med.)	46.55	186.20	70.25	281.00		
.5 Crawler Loader, 3 C.Y.		553.00		608.30		
56 L.H., Daily Totals		\$2838.40		\$4107.70	\$50.69	\$59.69
Crew B-53	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (light)	\$44.75	\$358.00	\$67.55	\$540.40	\$44.75	\$67.55
1 Trencher, Chain, 12 H.P.		62.80		69.08	7.88	8.68
8 L.H., Daily Totals		\$420.80		\$609.48	\$52.63	\$76.23
Crew B-54	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Equip. Oper. (light)	\$44.75	\$358.00	\$67.55	\$540.40	\$44.75	\$67.55
1 Trencher, Chain, 40 H.P.		312.80		344.08	36.30	40.30
8 L.H., Daily Totals		\$670.80		\$884.48	\$81.05	\$107.85
Crew B-54A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
.17 Labor Foreman (outside)	\$37.10	\$50.46	\$57.10	\$77.66	\$40.18	\$53.18
1 Equipment Operator (med.)	46.55	372.40	70.25	562.00		
1 Wheel Trencher, 67 H.P.		1084.00		1192.40	115.80	127.80
9.36 L.H., Daily Totals		\$1506.86		\$1832.06	\$160.96	\$187.96

Crew No.	Bare Costs		Incl.		Cost	
			Subs O&P		Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-54B						
1 Laborer (outside)	\$37.10	\$74.20	\$57.10	\$114.20	\$44.66	\$67.62
1 Operator (med.)	46.55	372.40	70.25	562.00		
1 Water Tank Trailer, 5000 H.P.		181.60		1997.60	181.60	199.76
4 L.H., Daily Totals		\$2262.60		\$2673.80	\$226.26	\$267.38
Crew B-54C						
2 Laborers	\$35.10	\$280.80	\$54.00	\$432.00	\$40.83	\$62.13
1 Operator (med.)	46.55	372.40	70.25	562.00		
1 Water Tank Trailer, 5000 H.P.		1084.00		1192.40	67.75	74.53
4 L.H., Daily Totals		\$1737.20		\$2186.40	\$108.58	\$136.65
Crew B-54D						
2 Laborers	\$35.10	\$280.80	\$54.00	\$432.00	\$40.83	\$62.13
1 Operator (med.)	46.55	372.40	70.25	562.00		
1 Water Tank Trailer, 5000 H.P.		344.40		378.84	21.52	23.68
4 L.H., Daily Totals		\$997.60		\$1372.84	\$62.35	\$85.80
Crew B-54E						
2 Laborers	\$35.10	\$280.80	\$54.00	\$432.00	\$40.83	\$62.13
1 Operator (med.)	46.55	372.40	70.25	562.00		
1 Water Tank Trailer, 5000 H.P.		2517.00		2768.70	157.31	173.04
4 L.H., Daily Totals		\$3170.20		\$3762.70	\$198.14	\$235.17
Crew B-55						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$34.85	\$53.37
1 Operator (light)	34.35	274.80	52.10	416.80		
1 Water Tank Trailer, 5000 H.P.		718.40		790.24		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	40.95	45.05
4 L.H., Daily Totals		\$1819.20		\$2361.88	\$75.80	\$98.41
Crew B-56						
2 Laborers	\$35.10	\$280.80	\$54.00	\$432.00	\$39.92	\$60.77
1 Operator (light)	44.75	358.00	67.55	540.40		
1 Water Tank Trailer, 5000 H.P.		937.20		1030.92		
1 Air Compressor, 600 cfm		467.60		514.36		
1 Flatbed Truck, Gas, 3 Ton		14.90		16.39	88.73	97.60
4 L.H., Daily Totals		\$2058.50		\$2534.07	\$128.66	\$158.38
Crew B-57						
2 Laborers	\$37.10	\$296.80	\$57.10	\$456.80	\$40.18	\$61.17
1 Operator (light)	35.10	561.60	54.00	864.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Equip. Oper. (oil)	41.25	330.00	62.25	498.00		
1 Crawler Crane, 25 Ton		1110.00		1221.00		
1 Dump Truck, 1 C.Y.		47.00		51.70		
1 Generator Pump, 6"		308.40		339.24		
1 20' Flatbed Truck, 6"		11.50		12.65		
1 20' Flatbed Truck, 6"		242.00		266.20	35.81	39.39
4 L.H., Daily Totals		\$3647.70		\$4827.19	\$75.99	\$100.57
Crew B-58						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$38.32	\$58.52
1 Operator (light)	44.75	358.00	67.55	540.40		
1 Backhoe Loader, 48 H.P.		334.00		367.40		
1 Helicopter, w/pilot		2625.00		2887.50	123.29	135.62
4 L.H., Daily Totals		\$3878.60		\$4659.30	\$161.61	\$194.14

Crew No.	Bare Costs		Incl.		Cost	
			Subs O&P		Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-59						
1 Truck Driver (heavy)	\$35.30	\$282.40	\$53.55	\$428.40	\$35.30	\$53.55
1 Truck Tractor, 220 H.P.		314.80		346.28		
1 Water Tank Trailer, 5000 Gal.		141.00		155.10	56.98	62.67
8 L.H., Daily Totals		\$738.20		\$929.78	\$92.28	\$116.22
Crew B-59A						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$35.17	\$53.85
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Water Tank Trailer, 5000 Gal.		141.00		155.10		
1 Truck Tractor, 220 H.P.		314.80		346.28	18.99	20.89
24 L.H., Daily Totals		\$1299.80		\$1793.78	\$54.16	\$74.74
Crew B-60						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$40.84	\$62.09
2 Laborers	35.10	561.60	54.00	864.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
2 Equip. Oper. (light)	44.75	716.00	67.55	1080.80		
1 Equip. Oper. (oil)	41.25	330.00	62.25	498.00		
1 Crawler Crane, 40 Ton		1115.00		1226.50		
1 Lead, 60' high		73.60		80.96		
1 Hammer, diesel, 15K ft.-lbs.		591.40		650.54		
1 Backhoe Loader, 48 H.P.		334.00		367.40	37.75	41.52
56 L.H., Daily Totals		\$4400.80		\$5802.20	\$78.59	\$103.61
Crew B-61						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.43	\$57.33
3 Laborers	35.10	842.40	54.00	1296.00		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Cement Mixer, 2 C.Y.		190.40		209.44		
1 Air Compressor, 160 cfm		136.80		150.48	8.18	9.00
40 L.H., Daily Totals		\$1824.40		\$2653.12	\$45.61	\$66.33
Crew B-62						
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$38.32	\$58.52
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Loader, Skid Steer, 30 H.P., gas		159.60		175.56	6.65	7.32
24 L.H., Daily Totals		\$1079.20		\$1579.96	\$44.97	\$65.83
Crew B-63						
4 Laborers	\$35.10	\$1123.20	\$54.00	\$1728.00	\$37.03	\$56.71
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Loader, Skid Steer, 30 H.P., gas		159.60		175.56	3.99	4.39
40 L.H., Daily Totals		\$1640.80		\$2443.96	\$41.02	\$61.10
Crew B-64						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$34.73	\$53.05
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Power Mulcher (small)		142.00		156.20		
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10	22.06	24.27
16 L.H., Daily Totals		\$908.60		\$1237.10	\$56.79	\$77.32
Crew B-65						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$34.73	\$53.05
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Power Mulcher (large)		286.60		315.26		
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10	31.10	34.21
16 L.H., Daily Totals		\$1053.20		\$1396.16	\$65.83	\$87.26

Crews

Crew No.	Bare Costs		Incl. Subs O&P	Cost Per Labor-Hour	
Crew B-66	Hr.	Daily	Hr.	Daily	
1 Equip. Oper. (light)	\$44.75	\$358.00	\$67.55	\$540.40	\$44.75 \$67.55
1 Loader/Backhoe		247.20		271.92	30.90 33.99
8 L.H., Daily Totals		\$605.20		\$812.32	\$75.65 \$101.54
Crew B-67	Hr.	Daily	Hr.	Daily	
1 Millwright	\$46.05	\$368.40	\$67.85	\$542.80	\$45.40 \$67.70
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40	
1 Forklift, R/T, 4,000 Lb.		289.20		318.12	18.07 19.88
16 L.H., Daily Totals		\$1015.60		\$1401.32	\$63.48 \$87.58
Crew B-68	Hr.	Daily	Hr.	Daily	
2 Millwrights	\$46.05	\$736.80	\$67.85	\$1085.60	\$45.62 \$67.75
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40	
1 Forklift, R/T, 4,000 Lb.		289.20		318.12	12.05 13.26
24 L.H., Daily Totals		\$1384.00		\$1944.12	\$57.67 \$81.00
Crew B-69	Hr.	Daily	Hr.	Daily	
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.58 \$58.92
3 Laborers	35.10	842.40	54.00	1296.00	
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20	
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00	
1 Hyd. Crane, 80 Ton		1554.00		1709.40	32.38 35.61
48 L.H., Daily Totals		\$3405.60		\$4537.40	\$70.95 \$94.53
Crew B-69A	Hr.	Daily	Hr.	Daily	
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.55 \$58.61
3 Laborers	35.10	842.40	54.00	1296.00	
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00	
1 Concrete Finisher	42.35	338.80	62.30	498.40	
1 Curb/Gutter Paver, 2-Track		761.00		837.10	15.85 17.44
48 L.H., Daily Totals		\$2611.40		\$3650.30	\$54.40 \$76.05
Crew B-69B	Hr.	Daily	Hr.	Daily	
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.55 \$58.61
3 Laborers	35.10	842.40	54.00	1296.00	
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00	
1 Cement Finisher	42.35	338.80	62.30	498.40	
1 Curb/Gutter Paver, 4-Track		733.20		806.52	15.28 16.80
48 L.H., Daily Totals		\$2583.60		\$3619.72	\$53.83 \$75.41
Crew B-70	Hr.	Daily	Hr.	Daily	
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$40.29 \$61.41
3 Laborers	35.10	842.40	54.00	1296.00	
3 Equip. Oper. (med.)	46.55	1117.20	70.25	1686.00	
1 Grader, 30,000 Lbs.		610.80		671.88	
1 Ripper, beam & 1 shank		81.60		89.76	
1 Road Sweeper, S.P., 8' wide		620.80		682.88	
1 F.E. Loader, W.M., 1.5 C.Y.		333.80		367.18	29.41 32.35
56 L.H., Daily Totals		\$3903.40		\$5250.50	\$69.70 \$93.76
Crew B-70A	Hr.	Daily	Hr.	Daily	
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$44.26 \$67.00
4 Equip. Oper. (med.)	46.55	1489.60	70.25	2248.00	
1 Grader, 40,000 Lbs.		1011.00		1112.10	
1 F.E. Loader, W.M., 2.5 C.Y.		472.40		519.64	
1 Dozer, 80 H.P.		442.40		486.64	
1 Roller, Pneum. Whl, 12 Ton		313.20		344.52	55.98 61.57
40 L.H., Daily Totals		\$4009.40		\$5142.90	\$100.24 \$128.57

Crew No.	Bare Costs		Incl. Subs O&P	Cost Per Labor-Hour	
Crew B-71	Hr.	Daily	Hr.	Daily	
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$40.29 \$61.41
3 Laborers	35.10	842.40	54.00	1296.00	
3 Equip. Oper. (med.)	46.55	1117.20	70.25	1686.00	
1 Pymt. Profiler, 750 H.P.		5459.00		6004.90	
1 Road Sweeper, S.P., 8' wide		620.80		682.88	
1 F.E. Loader, W.M., 1.5 C.Y.		333.80		367.18	114.83
56 L.H., Daily Totals		\$8670.00		\$10493.76	\$154.82
Crew B-72	Hr.	Daily	Hr.	Daily	
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$40.29 \$61.41
3 Laborers	35.10	842.40	54.00	1296.00	
4 Equip. Oper. (med.)	46.55	1489.60	70.25	2248.00	
1 Pymt. Profiler, 750 H.P.		5459.00		6004.90	
1 Hammermill, 250 H.P.		1721.00		1893.10	
1 Windrow Loader		1207.00		1327.70	
1 Mix Paver 165 H.P.		2012.00		2213.20	
1 Roller, Pneum. Whl, 12 Ton		313.20		344.52	167.38
64 L.H., Daily Totals		\$13341.00		\$15784.22	\$206.45
Crew B-73	Hr.	Daily	Hr.	Daily	
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$42.51
2 Laborers	35.10	561.60	54.00	864.00	
5 Equip. Oper. (med.)	46.55	1862.00	70.25	2810.00	
1 Road Mixer, 310 H.P.		1882.00		2070.20	
1 Tandem Roller, 10 Ton		227.60		250.36	
1 Hammermill, 250 H.P.		1721.00		1893.10	
1 Grader, 30,000 Lbs.		610.80		671.88	
5 F.E. Loader, W.M., 1.5 C.Y.		166.90		183.59	
5 Truck Tractor, 220 H.P.		157.40		173.14	
5 Water Tank Trailer, 5000 Gal.		70.50		77.55	75.57
64 L.H., Daily Totals		\$7556.60		\$9450.62	\$118.07
Crew B-74	Hr.	Daily	Hr.	Daily	
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$41.83
1 Laborer	35.10	280.80	54.00	432.00	
4 Equip. Oper. (med.)	46.55	1489.60	70.25	2248.00	
2 Truck Drivers (heavy)	35.30	564.80	53.55	856.80	
1 Grader, 30,000 Lbs.		610.80		671.88	
1 Ripper, beam & 1 shank		81.60		89.76	
2 Stabilizers, 310 H.P.		3170.00		3487.00	
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	
1 Chem. Spreader, Towed		50.00		55.00	
1 Roller, Vibratory, 25 Ton		640.20		704.22	
1 Water Tank Trailer, 5000 Gal.		141.00		155.10	
1 Truck Tractor, 220 H.P.		314.80		346.28	82.39
64 L.H., Daily Totals		\$7904.80		\$9793.68	\$123.51
Crew B-75	Hr.	Daily	Hr.	Daily	
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$41.96
1 Laborer	35.10	280.80	54.00	432.00	
4 Equip. Oper. (med.)	46.55	1489.60	70.25	2248.00	
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40	
1 Grader, 30,000 Lbs.		610.80		671.88	
1 Ripper, beam & 1 shank		81.60		89.76	
2 Stabilizers, 310 H.P.		3170.00		3487.00	
1 Dist. Tanker, 3000 Gallon		306.00		336.60	
1 Truck Tractor, 6x4, 380 H.P.		522.20		574.42	
1 Roller, Vibratory, 25 Ton		640.20		704.22	96.19
56 L.H., Daily Totals		\$7680.40		\$9429.08	\$137.18

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-76						
Truck Driver Foreman (outside)	\$44.80	\$358.40	\$72.00	\$576.00	\$43.96	\$69.17
Truck Drivers	42.80	1712.00	68.80	2752.00		
Equipment (crane)	47.80	764.80	72.15	1154.40		
Equipment, Oil	41.25	330.00	62.25	498.00		
Crane, 50 Ton		1257.00		1382.70		
Grange, 10 Ton		779.20		857.12		
Motor, Diesel, 15K ft.-lbs.		591.40		650.54		
Truck, High		73.60		80.96		
Air Compressor, 600 cfm		467.60		514.36		
3/4" Hoses, 3"		29.80		32.78	44.42	48.87
Daily Totals		\$6363.80		\$8498.86	\$88.39	\$118.04
Crew B-76A						
Laborer Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.71	\$57.69
Laborer	35.10	1404.00	54.00	2160.00		
Equipment (crane)	47.80	382.40	72.15	577.20		
Equipment, Oil	41.25	330.00	62.25	498.00		
Crane, 50 Ton		1257.00		1382.70		
Grange, 10 Ton		779.20		857.12	31.82	35.00
Daily Totals		\$4449.40		\$5931.82	\$69.52	\$92.68
Crew B-77						
Laborer Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.35	\$54.24
Laborer	35.10	842.40	54.00	1296.00		
Truck Driver (light)	34.35	274.80	52.10	416.80		
Crane, 25 H.P.		57.20		62.92		
Tractor, Trailer Mtd.		196.40		216.04		
Flatbed Truck, Gas, 3 Ton		264.40		290.84	12.95	14.24
Daily Totals		\$1932.00		\$2739.40	\$48.30	\$68.48
Crew B-78						
Laborer Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.31	\$54.20
Laborer	35.10	1123.20	54.00	1728.00		
Truck Driver (light)	34.35	274.80	52.10	416.80		
Tractor, S.P., 40 Gallon		148.60		163.46		
Flatbed Truck, Gas, 3 Ton		264.40		290.84		
Flatbed Truck, 3/4 Ton		127.00		139.70	11.25	12.38
Daily Totals		\$2234.80		\$3195.60	\$46.56	\$66.58
Crew B-78A						
Truck Driver (light)	\$44.75	\$358.00	\$67.55	\$540.40	\$44.75	\$67.55
Line Rem. (metal balls) 115 H.P.		800.80		880.88	100.10	110.11
Daily Totals		\$1158.80		\$1421.28	\$144.85	\$177.66
Crew B-78B						
Laborer	\$35.10	\$561.60	\$54.00	\$864.00	\$36.17	\$55.51
25' Equip. Oper. (light)	44.75	89.50	67.55	135.10		
Pickup Truck, 3/4 Ton		127.00		139.70		
Line Rem., 11 H.P., walk behind		61.20		67.32		
25' S.W.P., S.P., 8' wide		155.20		170.72	19.08	20.99
Daily Totals		\$994.50		\$1376.84	\$55.25	\$76.49
Crew B-78C						
Laborer Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.31	\$54.20
Laborer	35.10	1123.20	54.00	1728.00		
Truck Driver (light)	34.35	274.80	52.10	416.80		
Paint Striper, T.M., 120 Gal.		735.80		809.38		
Flatbed Truck, Gas, 3 Ton		264.40		290.84		
Pickup Truck, 3/4 Ton		127.00		139.70	23.48	25.83
Daily Totals		\$2822.00		\$3841.52	\$58.79	\$80.03

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-78D						
2 Labor Foremen (Outside)	\$37.10	\$593.60	\$57.10	\$913.60	\$35.42	\$54.43
7 Laborers	35.10	1965.60	54.00	3024.00		
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Paint Striper, T.M., 120 Gal.		735.80		809.38		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84		
3 Pickup Trucks, 3/4 Ton		381.00		419.10		
1 Air Compressor, 60 cfm		120.40		132.44		
1 50' Air Hose, 3/4"		3.05		3.36		
1 Breakers, Pavement, 60 lb.		9.80		10.78	18.93	20.82
80 L.H., Daily Totals		\$4348.45		\$6020.30	\$54.36	\$75.25
Crew B-78E						
2 Labor Foremen (Outside)	\$37.10	\$593.60	\$57.10	\$913.60	\$35.37	\$54.36
9 Laborers	35.10	2527.20	54.00	3888.00		
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Paint Striper, T.M., 120 Gal.		735.80		809.38		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84		
4 Pickup Trucks, 3/4 Ton		508.00		558.80		
2 Air Compressor, 60 cfm		240.80		264.88		
2 50' Air Hose, 3/4"		6.10		6.71		
2 Breakers, Pavement, 60 lb.		19.60		21.56	18.49	20.34
96 L.H., Daily Totals		\$5170.30		\$7170.57	\$53.86	\$74.69
Crew B-78F						
2 Labor Foremen (Outside)	\$37.10	\$593.60	\$57.10	\$913.60	\$35.33	\$54.31
11 Laborers	35.10	3088.80	54.00	4752.00		
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Paint Striper, T.M., 120 Gal.		735.80		809.38		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84		
7 Pickup Trucks, 3/4 Ton		889.00		977.90		
3 Air Compressor, 60 cfm		361.20		397.32		
3 50' Air Hose, 3/4"		9.15		10.07		
3 Breakers, Pavement, 60 lb.		29.40		32.34	20.44	22.48
112 L.H., Daily Totals		\$6246.15		\$8600.25	\$55.77	\$76.79
Crew B-79						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.35	\$54.24
3 Laborers	35.10	842.40	54.00	1296.00		
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Paint Striper, T.M., 120 Gal.		735.80		809.38		
1 Heating Kettle, 115 Gallon		44.50		48.95		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84		
2 Pickup Trucks, 3/4 Ton		254.00		279.40	32.47	35.71
40 L.H., Daily Totals		\$2712.70		\$3598.17	\$67.82	\$89.95
Crew B-79A						
1.5 Equip. Oper. (light)	\$44.75	\$537.00	\$67.55	\$810.60	\$44.75	\$67.55
5 Line Remov. (grinder) 115 H.P.		441.40		485.54		
1 Line Rem. (metal balls) 115 H.P.		800.80		880.88	103.52	113.87
12 L.H., Daily Totals		\$1779.20		\$2177.02	\$148.27	\$181.42
Crew B-79B						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
1 Set of Gases		86.40		95.04	10.80	11.88
8 L.H., Daily Totals		\$367.20		\$527.04	\$45.90	\$65.88

Crews

Crew No.	Bare Costs		Incl.		Cost	
			Subs O&P		Per Labor-Hour	
Crew B-79C	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.28	\$54.17
5 Laborers	35.10	1404.00	54.00	2160.00		
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Paint Striper, T.M., 120 Gal.		735.80		809.38		
1 Heating Kettle, 115 Gallon		44.50		48.95		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84		
3 Pickup Trucks, 3/4 Ton		381.00		419.10		
1 Air Compressor, 60 cfm		120.40		132.44		
1 50' Air Hose, 3/4"		3.05		3.36		
1 Breakers, Pavement, 60 lb.		9.80		10.78	27.84	30.62
56 L.H., Daily Totals		\$3534.55		\$4748.44	\$63.12	\$84.79
Crew B-79D	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
2 Labor Foremen (Outside)	\$37.10	\$593.60	\$57.10	\$913.60	\$35.51	\$54.54
5 Laborers	35.10	1404.00	54.00	2160.00		
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Paint Striper, T.M., 120 Gal.		735.80		809.38		
1 Heating Kettle, 115 Gallon		44.50		48.95		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84		
4 Pickup Trucks, 3/4 Ton		508.00		558.80		
1 Air Compressor, 60 cfm		120.40		132.44		
1 50' Air Hose, 3/4"		3.05		3.36		
1 Breakers, Pavement, 60 lb.		9.80		10.78	26.34	28.98
64 L.H., Daily Totals		\$3958.35		\$5344.94	\$61.85	\$83.51
Crew B-79E	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
2 Labor Foremen (Outside)	\$37.10	\$593.60	\$57.10	\$913.60	\$35.42	\$54.43
7 Laborers	35.10	1965.60	54.00	3024.00		
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Paint Striper, T.M., 120 Gal.		735.80		809.38		
1 Heating Kettle, 115 Gallon		44.50		48.95		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84		
5 Pickup Trucks, 3/4 Ton		635.00		698.50		
2 Air Compressors, 60 cfm		240.80		264.88		
2 50' Air Hoses, 3/4"		6.10		6.71		
2 Breakers, Pavement, 60 lb.		19.60		21.56	24.33	26.76
80 L.H., Daily Totals		\$4780.20		\$6495.22	\$59.75	\$81.19
Crew B-80	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.83	\$57.69
1 Laborer	35.10	280.80	54.00	432.00		
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84		
1 Earth Auger, Truck-Mtd.		403.40		443.74	20.87	22.96
32 L.H., Daily Totals		\$1878.20		\$2580.58	\$58.69	\$80.64
Crew B-80A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
3 Laborers	\$35.10	\$842.40	\$54.00	\$1296.00	\$35.10	\$54.00
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	11.02	12.12
24 L.H., Daily Totals		\$1106.80		\$1586.84	\$46.12	\$66.12
Crew B-80B	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
3 Laborers	\$35.10	\$842.40	\$54.00	\$1296.00	\$37.51	\$57.39
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Crane, Flatbed Mounted, 3 Ton		232.40		255.64	7.26	7.99
32 L.H., Daily Totals		\$1432.80		\$2092.04	\$44.77	\$65.38

Crew No.	Bare Costs		Incl.		Cost Per Laborer
			Subs O&P		
Crew B-80C	Hr.	Daily	Hr.	Daily	Bare Costs
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$34.85
1 Truck Driver (light)	34.35	274.80	52.10	416.80	
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10	
1 Manual fence post auger, gas		7.60		8.36	9.11
24 L.H., Daily Totals		\$1055.00		\$1521.26	\$43.96
Crew B-81	Hr.	Daily	Hr.	Daily	Bare Costs
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$36.98
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00	
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40	
1 Hydromulcher, T.M., 3000 Gal.		303.80		334.18	
1 Truck Tractor, 220 H.P.		314.80		346.28	25.77
24 L.H., Daily Totals		\$1554.20		\$2102.86	\$64.76
Crew B-81A	Hr.	Daily	Hr.	Daily	Bare Costs
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$34.73
1 Truck Driver (light)	34.35	274.80	52.10	416.80	
1 Hydromulcher, T.M., 600 Gal.		120.40		132.44	
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	24.05
16 L.H., Daily Totals		\$940.40		\$1272.08	\$58.77
Crew B-82	Hr.	Daily	Hr.	Daily	Bare Costs
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$39.52
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40	
1 Horiz. Borer, 6 H.P.		77.20		84.92	4.83
16 L.H., Daily Totals		\$716.00		\$1057.32	\$44.75
Crew B-82A	Hr.	Daily	Hr.	Daily	Bare Costs
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$39.52
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40	
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	
1 Flatbed Trailer, 25 Ton		108.60		119.46	
1 Horiz. Dir. Drill, 20k lb. thrust		622.00		684.20	62.19
16 L.H., Daily Totals		\$1633.80		\$2066.90	\$102.11
Crew B-82B	Hr.	Daily	Hr.	Daily	Bare Costs
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$38.32
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40	
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	
1 Flatbed Trailer, 25 Ton		108.60		119.46	
1 Horiz. Dir. Drill, 30k lb. thrust		886.20		974.82	52.47
24 L.H., Daily Totals		\$2178.80		\$2789.52	\$90.78
Crew B-82C	Hr.	Daily	Hr.	Daily	Bare Costs
2 Laborers	\$35.10	\$561.60	\$54.00	\$864.00	\$38.32
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40	
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	
1 Flatbed Trailer, 25 Ton		108.60		119.46	
1 Horiz. Dir. Drill, 50k lb. thrust		1176.00		1293.60	64.54
24 L.H., Daily Totals		\$2468.60		\$3108.30	\$102.96
Crew B-82D	Hr.	Daily	Hr.	Daily	Bare Costs
1 Equip. Oper. (light)	\$44.75	\$358.00	\$67.55	\$540.40	\$44.75
1 Mud Trailer for HDD, 1500 gallon		309.20		340.12	38.65
8 L.H., Daily Totals		\$667.20		\$880.52	\$83.40

Crew No.	Bare Costs		Incl. Subs O&P	Cost Per Labor-Hour	
Crew B-83	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Laborer	\$46.55	\$372.40	\$70.25	\$562.00	\$40.83 \$62.13
1 Core Drill (large)	35.10	280.80	54.00	432.00	
1 Core Drill (large)		748.00		822.80	46.75 51.42
Daily Totals		\$1401.20		\$1816.80	\$87.58 \$113.55
Crew B-84	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (light)	\$46.55	\$372.40	\$70.25	\$562.00	\$46.55 \$70.25
1 Tractor		343.40		377.74	42.92 47.22
Daily Totals		\$715.80		\$939.74	\$89.47 \$117.47
Crew B-85	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Laborer	\$35.10	\$842.40	\$54.00	\$1296.00	\$37.43 \$57.16
1 Equip. Oper. (heavy)	46.55	372.40	70.25	562.00	
1 Truck, 80'	35.30	282.40	53.55	428.40	
1 Truck, 80'		637.60		701.36	
1 Dist. Truck, 120 H.P.		283.80		312.18	
1 Rotary		6.30		6.93	23.19 25.51
Daily Totals		\$2424.90		\$3306.87	\$60.62 \$82.67
Crew B-86	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$46.55 \$70.25
1 Equip. Oper. S.P.		170.70		187.77	21.34 23.47
Daily Totals		\$543.10		\$749.77	\$67.89 \$93.72
Crew B-86A	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$46.55 \$70.25
1 Roller, 10,000 Lbs.		610.80		671.88	76.35 83.98
Daily Totals		\$983.20		\$1233.88	\$122.90 \$154.24
Crew B-86B	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$46.55 \$70.25
1 Core Drill		1243.00		1367.30	155.38 170.91
Daily Totals		\$1615.40		\$1929.30	\$201.93 \$241.16
Crew B-87	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$44.26 \$67.00
1 Equip. Oper. (med.)	46.55	1489.60	70.25	2248.00	
1 Roller, 100 H.P.		1154.40		1269.84	
1 Long Oper. 22' Tree		710.60		781.66	
1 Dist. 105 H.P.		550.80		605.88	
1 Roller, gas, 36' Long		43.60		47.96	61.48 67.63
Daily Totals		\$4229.80		\$5385.34	\$105.75 \$134.63
Crew B-88	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$44.91 \$67.93
1 Equip. Oper. (med.)	46.55	2234.40	70.25	3372.00	
1 Roller, 100 H.P.		1154.40		1269.84	
1 Long Oper. 22' Tree		710.60		781.66	
1 Long Opers. 50 H.P.		1730.40		1903.44	
1 Dist. 105 H.P.		550.80		605.88	
1 Roller, gas, 36' Long		43.60		47.96	74.82 82.30
Daily Totals		\$6705.00		\$8412.78	\$119.73 \$150.23
Crew B-89	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (light)	\$44.75	\$358.00	\$67.55	\$540.40	\$39.55 \$59.83
1 Tractor	34.35	274.80	52.10	416.80	
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	
1 Chain Saw		148.00		162.80	
1 Water Tank, 65 Gal.		17.40		19.14	26.86 29.55
Daily Totals		\$1062.60		\$1429.98	\$66.41 \$89.37

Crew No.	Bare Costs		Incl. Subs O&P	Cost Per Labor-Hour	
Crew B-89A	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Skilled Worker	\$45.40	\$363.20	\$70.20	\$561.60	\$40.25 \$62.10
1 Laborer	35.10	280.80	54.00	432.00	
1 Core Drill (large)		110.20		121.22	6.89 7.58
16 L.H., Daily Totals		\$754.20		\$1114.82	\$47.14 \$69.68
Crew B-89B	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Equip. Oper. (light)	\$44.75	\$358.00	\$67.55	\$540.40	\$39.55 \$59.83
1 Truck Driver, Light	34.35	274.80	52.10	416.80	
1 Wall Saw, Hydraulic, 10 H.P.		92.00		101.20	
1 Generator, Diesel, 100 KW		363.40		399.74	
1 Water Tank, 65 Gal.		17.40		19.14	
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	46.08 50.68
16 L.H., Daily Totals		\$1370.00		\$1768.12	\$85.63 \$110.51
Crew B-90	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.81 \$57.66
3 Laborers	35.10	842.40	54.00	1296.00	
2 Equip. Oper. (light)	44.75	716.00	67.55	1080.80	
2 Truck Drivers (heavy)	35.30	564.80	53.55	856.80	
1 Road Mixer, 310 H.P.		1882.00		2070.20	
1 Dist. Truck, 2000 Gal.		276.40		304.04	33.73 37.10
64 L.H., Daily Totals		\$4578.40		\$6064.64	\$71.54 \$94.76
Crew B-90A	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$41.93 \$63.73
2 Laborers	35.10	561.60	54.00	864.00	
4 Equip. Oper. (med.)	46.55	1489.60	70.25	2248.00	
2 Graders, 30,000 Lbs.		1221.60		1343.76	
1 Tandem Roller, 10 Ton		227.60		250.36	
1 Roller, Pneum. Whl, 12 Ton		313.20		344.52	31.47 34.62
56 L.H., Daily Totals		\$4110.40		\$5507.44	\$73.40 \$98.35
Crew B-90B	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$41.16 \$62.64
2 Laborers	35.10	561.60	54.00	864.00	
3 Equip. Oper. (med.)	46.55	1117.20	70.25	1686.00	
1 Roller, Pneum. Whl, 12 Ton		313.20		344.52	
1 Road Mixer, 310 H.P.		1882.00		2070.20	45.73 50.31
48 L.H., Daily Totals		\$4170.80		\$5421.52	\$86.89 \$112.95
Crew B-90C	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.46 \$58.59
4 Laborers	35.10	1123.20	54.00	1728.00	
3 Equip. Oper. (med.)	46.55	1117.20	70.25	1686.00	
3 Truck Drivers (heavy)	35.30	847.20	53.55	1285.20	
3 Road Mixers, 310 H.P.		5646.00		6210.60	64.16 70.58
48 L.H., Daily Totals		\$9030.40		\$11366.60	\$102.62 \$129.17
Crew B-90D	Hr.	Daily	Hr.	Daily	Bare Costs Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.94 \$57.88
6 Laborers	35.10	1684.80	54.00	2592.00	
3 Equip. Oper. (med.)	46.55	1117.20	70.25	1686.00	
3 Truck Drivers (heavy)	35.30	847.20	53.55	1285.20	
3 Road Mixers, 310 H.P.		5646.00		6210.60	54.29 59.72
104 L.H., Daily Totals		\$9592.00		\$12230.60	\$92.23 \$117.60

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-91						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$41.10	\$62.46
2 Laborers	35.10	561.60	54.00	864.00		
4 Equip. Oper. (med.)	46.55	1489.60	70.25	2248.00		
1 Truck Driver (heavy)	35.30	282.40	53.55	428.40		
1 Dist. Tanker, 3000 Gallon		306.00		336.60		
1 Truck Tractor, 6x4, 380 H.P.		522.20		574.42		
1 Aggreg. Spreader, S.P.		781.80		859.98		
1 Roller, Pneum. Whl, 12 Ton		313.20		344.52		
1 Tandem Roller, 10 Ton		227.60		250.36	33.61	36.97
64 L.H., Daily Totals		\$4781.20		\$6363.08	\$47.71	\$99.42
Crew B-91B						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$40.83	\$62.13
1 Equipment Oper. (med.)	46.55	372.40	70.25	562.00		
1 Road Sweeper, Vac. Assist.		876.60		964.26	54.79	60.27
16 L.H., Daily Totals		\$1529.80		\$1958.26	\$95.61	\$122.39
Crew B-91C						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$34.73	\$53.05
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Catch Basin Cleaning Truck		535.80		589.38	33.49	36.84
16 L.H., Daily Totals		\$1091.40		\$1438.18	\$68.21	\$89.89
Crew B-91D						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.69	\$60.42
5 Laborers	35.10	1404.00	54.00	2160.00		
5 Equip. Oper. (med.)	46.55	1862.00	70.25	2810.00		
2 Truck Drivers (heavy)	35.30	564.80	53.55	856.80		
1 Aggreg. Spreader, S.P.		781.80		859.98		
2 Truck Tractor, 6x4, 380 H.P.		1044.40		1148.84		
2 Dist. Tanker, 3000 Gallon		612.00		673.20		
2 Pavement brush, towed		163.60		179.96		
2 Roller, Pneum. Whl, 12 Ton		626.40		689.04	31.04	34.14
104 L.H., Daily Totals		\$7355.80		\$9834.62	\$70.73	\$94.56
Crew B-92						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.60	\$54.77
3 Laborers	35.10	842.40	54.00	1296.00		
1 Crack Cleaner, 25 H.P.		57.20		62.92		
1 Air Compressor, 60 cfm		120.40		132.44		
1 Tar Kettle, T.M.		77.20		84.92		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	16.23	17.85
32 L.H., Daily Totals		\$1658.40		\$2323.92	\$51.83	\$72.62
Crew B-93						
1 Equip. Oper. (med.)	\$46.55	\$372.40	\$70.25	\$562.00	\$46.55	\$70.25
1 Feller Buncher, 100 H.P.		577.20		634.92	72.15	79.36
8 L.H., Daily Totals		\$949.60		\$1196.92	\$118.70	\$149.62
Crew B-94A						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
1 Diaphragm Water Pump, 2"		68.60		75.46		
1 20' Suction Hose, 2"		1.95		2.15		
2 50' Discharge Hoses, 2"		3.50		3.85	9.26	10.18
8 L.H., Daily Totals		\$354.85		\$513.46	\$44.36	\$64.18

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew B-94B						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
1 Diaphragm Water Pump, 4"		111.20		122.32		
1 20' Suction Hose, 4"		3.25		3.58		
2 50' Discharge Hoses, 4"		9.40		10.34	15.48	
8 L.H., Daily Totals		\$404.65		\$568.24	\$50.56	\$73.90
Crew B-94C						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
1 Centrifugal Water Pump, 3"		73.80		81.18		
1 20' Suction Hose, 3"		2.85		3.13		
2 50' Discharge Hoses, 3"		6.10		6.71	10.34	
8 L.H., Daily Totals		\$363.55		\$523.02	\$45.44	\$67.86
Crew B-94D						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
1 Centr. Water Pump, 6"		308.40		339.24		
1 20' Suction Hose, 6"		11.50		12.65		
2 50' Discharge Hoses, 6"		24.20		26.62	43.01	
8 L.H., Daily Totals		\$624.90		\$810.51	\$78.11	\$107.26
Crew C-1						
3 Carpenters	\$44.10	\$1058.40	\$67.85	\$1628.40	\$41.85	\$67.85
1 Laborer	35.10	280.80	54.00	432.00		
32 L.H., Daily Totals		\$1339.20		\$2060.40	\$41.85	\$67.85
Crew C-2						
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$42.93	\$67.85
4 Carpenters	44.10	1411.20	67.85	2171.20		
1 Laborer	35.10	280.80	54.00	432.00		
48 L.H., Daily Totals		\$2060.80		\$3170.80	\$42.93	\$67.85
Crew C-2A						
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$42.64	\$67.85
3 Carpenters	44.10	1058.40	67.85	1628.40		
1 Cement Finisher	42.35	338.80	62.30	498.40		
1 Laborer	35.10	280.80	54.00	432.00		
48 L.H., Daily Totals		\$2046.80		\$3126.40	\$42.64	\$67.85
Crew C-3						
1 Rodman Foreman (outside)	\$51.10	\$408.80	\$81.60	\$652.80	\$45.31	\$72.62
4 Rodmen (reint.)	49.10	1571.20	78.40	2508.80		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
2 Laborers	35.10	561.60	54.00	864.00		
3 Stressing Equipment		30.60		33.66		
5 Grouting Equipment		77.30		85.03		
64 L.H., Daily Totals		\$3007.50		\$4684.69	\$46.96	\$72.62
Crew C-4						
1 Rodman Foreman (outside)	\$51.10	\$408.80	\$81.60	\$652.80	\$49.60	\$72.62
3 Rodmen (reint.)	49.10	1178.40	78.40	1881.60		
3 Stressing Equipment		30.60		33.66		
32 L.H., Daily Totals		\$1617.80		\$2568.06	\$50.56	\$72.62
Crew C-4A						
2 Rodmen (reint.)	\$49.10	\$785.60	\$78.40	\$1254.40	\$49.10	\$72.62
4 Stressing Equipment		40.80		44.88		
16 L.H., Daily Totals		\$826.40		\$1299.28	\$51.85	\$72.62

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew C-5						
Foreman (outside)	\$51.10	\$408.80	\$81.60	\$652.80	\$48.08	\$75.66
Foreman (int.)	49.10	1571.20	78.40	2508.80		
Equip. (crane)	47.80	382.40	72.15	577.20		
Operator	41.25	330.00	62.25	498.00		
25 Ton		697.20		766.92	12.45	13.70
Totals		\$3389.60		\$5003.72	\$60.53	\$89.35
Crew C-6						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$36.64	\$55.90
3 Laborers	35.10	1123.20	54.00	1728.00		
Cement Finisher	42.35	338.80	62.30	498.40		
Vibrators		54.80		60.28	1.14	1.26
Totals		\$1813.60		\$2743.48	\$37.78	\$57.16
Crew C-7						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.08	\$57.99
3 Laborers	35.10	1404.00	54.00	2160.00		
Cement Finisher	42.35	338.80	62.30	498.40		
Equip. (med.)	46.55	372.40	70.25	562.00		
Roller (roller)	41.25	330.00	62.25	498.00		
Vibrators		54.80		60.28		
Shovel, 1 C.Y.		22.40		24.64		
55 Ton		1100.00		1210.00	16.35	17.98
Totals		\$3919.20		\$5470.12	\$54.43	\$75.97
Crew C-7A						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.40	\$54.27
3 Laborers	35.10	1404.00	54.00	2160.00		
Shovel (Heavy)	35.30	564.80	53.55	856.80		
Site Mixers		1855.60		2041.16	28.99	31.89
Totals		\$4121.20		\$5514.76	\$64.39	\$86.17
Crew C-7B						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.71	\$57.69
3 Laborers	35.10	1404.00	54.00	2160.00		
Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
Equip. Oper. (crane)	41.25	330.00	62.25	498.00		
Shovel, 2 C.Y.		35.20		38.72		
Latent Form Crane, 165 Ton		1907.00		2097.70	30.35	33.38
Totals		\$4355.40		\$5828.42	\$68.05	\$91.07
Crew C-7C						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.21	\$58.45
3 Laborers	35.10	1404.00	54.00	2160.00		
Equip. Operators (med.)	46.55	744.80	70.25	1124.00		
FE. W.M., 4 C.Y.		1222.00		1344.20	19.09	21.00
Totals		\$3667.60		\$5085.00	\$57.31	\$79.45
Crew C-7D						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.02	\$56.76
3 Laborers	35.10	1404.00	54.00	2160.00		
Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
Conveyer		186.00		204.60	3.32	3.65
Totals		\$2259.20		\$3383.40	\$40.34	\$60.42

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew C-8						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.09	\$59.14
3 Laborers	35.10	842.40	54.00	1296.00		
2 Cement Finishers	42.35	677.60	62.30	996.80		
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
1 Concrete Pump (small)		715.60		787.16	12.78	14.06
56 L.H., Daily Totals		\$2904.80		\$4098.76	\$51.87	\$73.19
Crew C-8A						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.85	\$57.28
3 Laborers	35.10	842.40	54.00	1296.00		
2 Cement Finishers	42.35	677.60	62.30	996.80		
48 L.H., Daily Totals		\$1816.80		\$2749.60	\$37.85	\$57.28
Crew C-8B						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.79	\$57.87
3 Laborers	35.10	842.40	54.00	1296.00		
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
1 Vibrating Power Screed		65.50		72.05		
1 Roller, Vibratory, 25 Ton		640.20		704.22		
1 Dozer, 200 H.P.		1243.00		1367.30	48.72	53.59
40 L.H., Daily Totals		\$3460.30		\$4458.37	\$86.51	\$111.46
Crew C-8C						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.55	\$58.61
3 Laborers	35.10	842.40	54.00	1296.00		
1 Cement Finisher	42.35	338.80	62.30	498.40		
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
1 Shotcrete Rig, 12 C.Y./hr		242.00		266.20		
1 Air Compressor, 160 cfm		136.80		150.48		
4-50' Air Hoses, 1"		16.40		18.04		
4-50' Air Hoses, 2"		31.00		34.10	8.88	9.77
48 L.H., Daily Totals		\$2276.60		\$3282.02	\$47.43	\$68.38
Crew C-8D						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.83	\$60.24
1 Laborer	35.10	280.80	54.00	432.00		
1 Cement Finisher	42.35	338.80	62.30	498.40		
1 Equipment Oper. (light)	44.75	358.00	67.55	540.40		
1 Air Compressor, 250 cfm		177.00		194.70		
2-50' Air Hoses, 1"		8.20		9.02	5.79	6.37
32 L.H., Daily Totals		\$1459.60		\$2131.32	\$45.61	\$66.60
Crew C-8E						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$38.25	\$58.16
3 Laborers	35.10	842.40	54.00	1296.00		
1 Cement Finisher	42.35	338.80	62.30	498.40		
1 Equipment Oper. (light)	44.75	358.00	67.55	540.40		
1 Shotcrete Rig, 35 C.Y./hr		268.80		295.68		
1 Air Compressor, 250 cfm		177.00		194.70		
4-50' Air Hoses, 1"		16.40		18.04		
4-50' Air Hoses, 2"		31.00		34.10	10.28	11.30
48 L.H., Daily Totals		\$2329.20		\$3334.12	\$48.52	\$69.46
Crew C-10						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$39.93	\$59.53
2 Cement Finishers	42.35	677.60	62.30	996.80		
24 L.H., Daily Totals		\$958.40		\$1428.80	\$39.93	\$59.53

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew C-108						
3 Laborers	\$35.10	\$842.40	\$54.00	\$1296.00	\$38.00	\$57.32
2 Cement Finishers	42.35	677.60	62.30	996.80		
1 Concrete Mixer, 10 C.F.		160.60		176.66		
2 Trowels, 48" Walk-Behind		89.20		98.12	6.25	6.87
40 L.H., Daily Totals		\$1769.80		\$2567.58	\$44.24	\$64.19
Crew C-10C						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$39.93	\$59.53
2 Cement Finishers	42.35	677.60	62.30	996.80		
1 Trowel, 48" Walk-Behind		44.60		49.06	1.86	2.04
24 L.H., Daily Totals		\$1003.00		\$1477.86	\$41.79	\$61.58
Crew C-10D						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$39.93	\$59.53
2 Cement Finishers	42.35	677.60	62.30	996.80		
1 Vibrating Power Screed		65.50		72.05		
1 Trowel, 48" Walk-Behind		44.60		49.06	4.59	5.05
24 L.H., Daily Totals		\$1068.50		\$1549.91	\$44.52	\$64.58
Crew C-10E						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$39.93	\$59.53
2 Cement Finishers	42.35	677.60	62.30	996.80		
1 Vibrating Power Screed		65.50		72.05		
1 Cement Trowel, 96" Ride-On		174.20		191.62	9.99	10.99
24 L.H., Daily Totals		\$1198.10		\$1692.47	\$49.92	\$70.52
Crew C-11						
1 Struc. Steel Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$48.50	\$83.97
6 Struc. Steel Workers	49.35	2368.80	88.25	4236.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Lattice Boom Crane, 150 Ton		1829.00		2011.90	25.40	27.94
72 L.H., Daily Totals		\$5321.00		\$8057.50	\$73.90	\$111.91
Crew C-12						
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$43.55	\$66.78
3 Carpenters	44.10	1058.40	67.85	1628.40		
1 Laborer	35.10	280.80	54.00	432.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Hyd. Crane, 12 Ton		612.00		673.20	12.75	14.03
48 L.H., Daily Totals		\$2702.40		\$3878.40	\$56.30	\$80.80
Crew C-13						
1 Struc. Steel Worker	\$49.35	\$394.80	\$88.25	\$706.00	\$47.60	\$81.45
1 Welder	49.35	394.80	88.25	706.00		
1 Carpenter	44.10	352.80	67.85	542.80		
1 Welder, gas engine, 300 amp		121.60		133.76	5.07	5.57
24 L.H., Daily Totals		\$1264.00		\$2088.56	\$52.67	\$87.02
Crew C-14						
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$43.17	\$66.60
5 Carpenters	44.10	1764.00	67.85	2714.00		
4 Laborers	35.10	1123.20	54.00	1728.00		
4 Rodmen (reinf.)	49.10	1571.20	78.40	2508.80		
2 Cement Finishers	42.35	677.60	62.30	996.80		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Hyd. Crane, 80 Ton		1554.00		1709.40	10.79	11.87
144 L.H., Daily Totals		\$7771.20		\$11299.80	\$53.97	\$78.47

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour
	Hr.	Daily	Hr.	Daily	
Crew C-14A					
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$44.29
16 Carpenters	44.10	5644.80	67.85	8684.80	
4 Rodmen (reinf.)	49.10	1571.20	78.40	2508.80	
2 Laborers	35.10	561.60	54.00	864.00	
1 Cement Finisher	42.35	338.80	62.30	498.40	
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00	
1 Gas Engine Vibrator		27.40		30.14	
1 Concrete Pump (small)		715.60		787.16	3.71
200 L.H., Daily Totals		\$9600.60		\$14502.90	\$48.00
Crew C-14B					
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$44.21
16 Carpenters	44.10	5644.80	67.85	8684.80	
4 Rodmen (reinf.)	49.10	1571.20	78.40	2508.80	
2 Laborers	35.10	561.60	54.00	864.00	
2 Cement Finishers	42.35	677.60	62.30	996.80	
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00	
1 Gas Engine Vibrator		27.40		30.14	
1 Concrete Pump (small)		715.60		787.16	3.57
208 L.H., Daily Totals		\$9939.40		\$15001.30	\$47.79
Crew C-14C					
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$42.26
6 Carpenters	44.10	2116.80	67.85	3256.80	
2 Rodmen (reinf.)	49.10	785.60	78.40	1254.40	
4 Laborers	35.10	1123.20	54.00	1728.00	
1 Cement Finisher	42.35	338.80	62.30	498.40	
1 Gas Engine Vibrator		27.40		30.14	.24
112 L.H., Daily Totals		\$4760.60		\$7335.34	\$42.51
Crew C-14D					
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$43.29
18 Carpenters	44.10	6350.40	67.85	9770.40	
2 Rodmen (reinf.)	49.10	785.60	78.40	1254.40	
2 Laborers	35.10	561.60	54.00	864.00	
1 Cement Finisher	42.35	338.80	62.30	498.40	
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00	
1 Gas Engine Vibrator		27.40		30.14	
1 Concrete Pump (small)		715.60		787.16	3.71
200 L.H., Daily Totals		\$9520.60		\$14334.10	\$47.60
Crew C-14E					
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$43.49
2 Carpenters	44.10	705.60	67.85	1085.60	
4 Rodmen (reinf.)	49.10	1571.20	78.40	2508.80	
3 Laborers	35.10	842.40	54.00	1296.00	
1 Cement Finisher	42.35	338.80	62.30	498.40	
1 Gas Engine Vibrator		27.40		30.14	.31
88 L.H., Daily Totals		\$3854.20		\$5986.54	\$43.80
Crew C-14F					
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$40.16
2 Laborers	35.10	561.60	54.00	864.00	
6 Cement Finishers	42.35	2032.80	62.30	2990.40	
1 Gas Engine Vibrator		27.40		30.14	.36
72 L.H., Daily Totals		\$2918.60		\$4341.34	\$40.54

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew C-14G						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.53	\$59.19
Skilled Worker	35.10	561.60	54.00	864.00		
Cement Finisher	42.35	1355.20	62.30	1993.60		
Gas Engine Vibrator		27.40		30.14	.49	.54
Daily Totals		\$2241.00		\$3344.54	\$40.02	\$59.72
Crew C-14H						
Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$43.48	\$66.89
Skilled Worker	44.10	705.60	67.85	1085.60		
Cement Finisher	49.10	392.80	78.40	627.20		
Gas Engine Vibrator	35.10	280.80	54.00	432.00		
Daily Totals	42.35	338.80	62.30	498.40		
		27.40		30.14	.57	.63
Daily Totals		\$2114.20		\$3240.94	\$44.05	\$67.52
Crew C-14L						
Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$41.12	\$63.03
Skilled Worker	44.10	2116.80	67.85	3256.80		
Cement Finisher	35.10	1123.20	54.00	1728.00		
Gas Engine Vibrator	42.35	338.80	62.30	498.40		
Daily Totals		\$3975.00		\$6080.94	\$41.41	\$63.34
Crew C-15						
Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$41.49	\$63.52
Skilled Worker	44.10	705.60	67.85	1085.60		
Cement Finisher	35.10	842.40	54.00	1296.00		
Gas Engine Vibrator	42.35	677.60	62.30	996.80		
Daily Totals	49.10	392.80	78.40	627.20		
		\$2987.20		\$4573.20	\$41.49	\$63.52
Crew C-16						
Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.09	\$59.14
Skilled Worker	35.10	842.40	54.00	1296.00		
Cement Finisher	42.35	677.60	62.30	996.80		
Gas Engine Vibrator	46.55	372.40	70.25	562.00		
Gas Engine Pump		280.40		308.44		
50' Hoses, 3/4"		6.10		6.71		
50' Hoses, 2"		15.50		17.05	5.39	5.93
Daily Totals		\$2491.20		\$3643.80	\$44.49	\$65.07
Crew C-17						
Skilled Worker Foreman (out)	\$47.40	\$758.40	\$73.30	\$1172.80	\$45.80	\$70.82
Skilled Workers	45.40	2905.60	70.20	4492.80		
Daily Totals		\$3664.00		\$5665.60	\$45.80	\$70.82
Crew C-17A						
Skilled Worker Foreman (out)	\$47.40	\$758.40	\$73.30	\$1172.80	\$45.82	\$70.84
Skilled Workers	45.40	2905.60	70.20	4492.80		
25' Equip. Oper. (crane)	47.80	47.80	72.15	72.15		
Hyd. Crane, 80 Ton		194.25		213.68	2.40	2.64
Daily Totals		\$3906.05		\$5951.43	\$48.22	\$73.47
Crew C-17B						
Skilled Worker Foreman (out)	\$47.40	\$758.40	\$73.30	\$1172.80	\$45.85	\$70.85
Skilled Workers	45.40	2905.60	70.20	4492.80		
25' Equip. Oper. (crane)	47.80	95.60	72.15	144.30		
Hyd. Crane, 80 Ton		388.50		427.35		
48" Walk-Behind		11.15		12.27	4.87	5.36
Daily Totals		\$4159.25		\$6249.52	\$50.72	\$76.21

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew C-17C						
2 Skilled Worker Foremen (out)	\$47.40	\$758.40	\$73.30	\$1172.80	\$45.87	\$70.87
8 Skilled Workers	45.40	2905.60	70.20	4492.80		
.375 Equip. Oper. (crane)	47.80	143.40	72.15	216.45		
.375 Hyd. Crane, 80 Ton		582.75		641.02	7.02	7.72
83 L.H., Daily Totals		\$4390.15		\$6523.07	\$52.89	\$78.59
Crew C-17D						
2 Skilled Worker Foremen (out)	\$47.40	\$758.40	\$73.30	\$1172.80	\$45.90	\$70.88
8 Skilled Workers	45.40	2905.60	70.20	4492.80		
.5 Equip. Oper. (crane)	47.80	191.20	72.15	288.60		
.5 Hyd. Crane, 80 Ton		777.00		854.70	9.25	10.18
60 L.H., Daily Totals		\$4632.20		\$6808.90	\$55.15	\$81.06
Crew C-17E						
2 Skilled Worker Foremen (out)	\$47.40	\$758.40	\$73.30	\$1172.80	\$45.80	\$70.82
8 Skilled Workers	45.40	2905.60	70.20	4492.80		
1 Hyd. Jack with Rods		90.70		99.77	1.13	1.25
80 L.H., Daily Totals		\$3754.70		\$5765.37	\$46.93	\$72.07
Crew C-18						
125 Labor Foreman (outside)	\$37.10	\$37.10	\$57.10	\$57.10	\$35.32	\$54.34
1 Laborer	35.10	280.80	54.00	432.00		
1 Concrete Cart, 10 C.F.		56.80		62.48	6.31	6.94
9 L.H., Daily Totals		\$374.70		\$551.58	\$41.63	\$61.29
Crew C-18						
125 Labor Foreman (outside)	\$37.10	\$37.10	\$57.10	\$57.10	\$35.32	\$54.34
1 Laborer	35.10	280.80	54.00	432.00		
1 Concrete Cart, 18 C.F.		94.40		103.84	10.49	11.54
9 L.H., Daily Totals		\$412.30		\$592.94	\$45.81	\$65.88
Crew C-20						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.69	\$57.46
5 Laborers	35.10	1404.00	54.00	2160.00		
1 Cement Finisher	42.35	338.80	62.30	498.40		
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
2 Gas Engine Vibrators		54.80		60.28		
1 Concrete Pump (small)		715.60		787.16	12.04	13.24
64 L.H., Daily Totals		\$3182.40		\$4524.64	\$49.73	\$70.70
Crew C-21						
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$37.69	\$57.46
5 Laborers	35.10	1404.00	54.00	2160.00		
1 Cement Finisher	42.35	338.80	62.30	498.40		
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
2 Gas Engine Vibrators		54.80		60.28		
1 Concrete Conveyor		186.00		204.60	3.76	4.14
64 L.H., Daily Totals		\$2652.80		\$3942.08	\$41.45	\$61.60
Crew C-22						
1 Rodman Foreman (outside)	\$51.10	\$408.80	\$81.60	\$652.80	\$49.26	\$78.48
4 Rodmen (reinf.)	49.10	1571.20	78.40	2508.80		
.125 Equip. Oper. (crane)	47.80	47.80	72.15	72.15		
.125 Equip. Oper. (crane)	41.25	41.25	62.25	62.25		
.125 Hyd. Crane, 25 Ton		87.15		95.86	2.08	2.28
42 L.H., Daily Totals		\$2156.20		\$3391.86	\$51.34	\$80.76

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew C-23	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
2 Skilled Worker Foremen (out)	\$47.40	\$758.40	\$73.30	\$1172.80	\$45.63	\$70.22
6 Skilled Workers	45.40	2179.20	70.20	3369.60		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Lattice Boom Crane, 90 Ton		1497.00		1646.70	18.71	20.58
80 L.H., Daily Totals		\$5147.00		\$7264.30	\$64.34	\$90.80
Crew C-23A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$39.27	\$59.90
2 Laborers	35.10	561.60	54.00	864.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Crawler Crane, 100 Ton		1628.00		1790.80		
3 Conc. Buckets, 8 C.Y.		598.20		658.02	55.66	61.22
40 L.H., Daily Totals		\$3797.00		\$4844.82	\$94.92	\$121.12
Crew C-24	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
2 Skilled Worker Foremen (out)	\$47.40	\$758.40	\$73.30	\$1172.80	\$45.63	\$70.22
6 Skilled Workers	45.40	2179.20	70.20	3369.60		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Lattice Boom Crane, 150 Ton		1829.00		2011.90	22.86	25.15
80 L.H., Daily Totals		\$5479.00		\$7629.50	\$68.49	\$95.37
Crew C-25	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
2 Rodmen (reinf.)	\$49.10	\$785.60	\$78.40	\$1254.40	\$38.48	\$62.55
2 Rodmen Helpers	27.85	445.60	46.70	747.20		
32 L.H., Daily Totals		\$1231.20		\$2001.60	\$38.48	\$62.55
Crew C-27	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
2 Cement Finishers	\$42.35	\$677.60	\$62.30	\$996.80	\$42.35	\$62.30
1 Concrete Saw		148.00		162.80	9.25	10.18
16 L.H., Daily Totals		\$825.60		\$1159.60	\$51.60	\$72.47
Crew C-28	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Cement Finisher	\$42.35	\$338.80	\$62.30	\$498.40	\$42.35	\$62.30
1 Portable Air Compressor, Gas		17.55		19.31	2.19	2.41
8 L.H., Daily Totals		\$356.35		\$517.71	\$44.54	\$64.71
Crew C-29	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
1 Pressure Washer		63.00		69.30	7.88	8.66
8 L.H., Daily Totals		\$343.80		\$501.30	\$42.98	\$62.66
Crew C-30	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
1 Concrete Mixer, 10 C.F.		160.60		176.66	20.07	22.08
8 L.H., Daily Totals		\$441.40		\$608.66	\$55.17	\$76.08
Crew D-1	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Bricklayer	\$44.10	\$352.80	\$66.60	\$532.80	\$39.85	\$60.17
1 Bricklayer Helper	35.60	284.80	53.75	430.00		
16 L.H., Daily Totals		\$637.60		\$962.80	\$39.85	\$60.17
Crew D-2	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
3 Bricklayers	\$44.10	\$1058.40	\$66.60	\$1598.40	\$41.01	\$62.04
2 Bricklayer Helpers	35.60	569.60	53.75	860.00		
5 Carpenter	44.10	176.40	67.85	271.40		
44 L.H., Daily Totals		\$1804.40		\$2729.80	\$41.01	\$62.04

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew D-3	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
3 Bricklayers	\$44.10	\$1058.40	\$66.60	\$1598.40	\$41.01	\$62.04
2 Bricklayer Helpers	35.60	569.60	53.75	860.00		
25 Carpenter	44.10	88.20	67.85	135.70		
42 L.H., Daily Totals		\$1716.20		\$2594.10	\$41.01	\$62.04
Crew D-4	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Bricklayer	\$44.10	\$352.80	\$66.60	\$532.80	\$41.01	\$62.04
2 Bricklayer Helpers	35.60	569.60	53.75	860.00		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Grout Pump, 50 C.F./hr.		127.40		140.14		
32 L.H., Daily Totals		\$1407.80		\$2073.34	\$43.99	\$64.34
Crew D-5	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Bricklayer	\$44.10	\$352.80	\$66.60	\$532.80	\$41.01	\$62.04
8 L.H., Daily Totals		\$352.80		\$532.80	\$41.01	\$62.04
Crew D-6	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
3 Bricklayers	\$44.10	\$1058.40	\$66.60	\$1598.40	\$41.01	\$62.04
3 Bricklayer Helpers	35.60	854.40	53.75	1290.00		
25 Carpenter	44.10	88.20	67.85	135.70		
50 L.H., Daily Totals		\$2001.00		\$3024.10	\$40.02	\$60.02
Crew D-7	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Tile Layer	\$40.75	\$326.00	\$59.85	\$478.80	\$36.47	\$52.77
1 Tile Layer Helper	32.10	256.80	47.15	377.20		
16 L.H., Daily Totals		\$582.80		\$856.00	\$36.47	\$52.77
Crew D-8	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
3 Bricklayers	\$44.10	\$1058.40	\$66.60	\$1598.40	\$41.01	\$62.04
2 Bricklayer Helpers	35.60	569.60	53.75	860.00		
40 L.H., Daily Totals		\$1628.00		\$2458.40	\$40.70	\$61.00
Crew D-9	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
3 Bricklayers	\$44.10	\$1058.40	\$66.60	\$1598.40	\$39.85	\$60.17
3 Bricklayer Helpers	35.60	854.40	53.75	1290.00		
48 L.H., Daily Totals		\$1912.80		\$2888.40	\$39.85	\$60.17
Crew D-10	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Bricklayer Foreman (outside)	\$46.10	\$368.80	\$69.60	\$556.80	\$43.40	\$65.17
1 Bricklayer	44.10	352.80	66.60	532.80		
1 Bricklayer Helper	35.60	284.80	53.75	430.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 S.P. Crane, 4x4, 12 Ton		448.20		493.02	14.00	15.50
32 L.H., Daily Totals		\$1837.00		\$2589.82	\$57.41	\$80.17
Crew D-11	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Bricklayer Foreman (outside)	\$46.10	\$368.80	\$69.60	\$556.80	\$41.93	\$63.17
1 Bricklayer	44.10	352.80	66.60	532.80		
1 Bricklayer Helper	35.60	284.80	53.75	430.00		
24 L.H., Daily Totals		\$1006.40		\$1519.60	\$41.93	\$63.17
Crew D-12	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Bricklayer Foreman (outside)	\$46.10	\$368.80	\$69.60	\$556.80	\$40.75	\$61.00
1 Bricklayer	44.10	352.80	66.60	532.80		
2 Bricklayer Helpers	35.60	569.60	53.75	860.00		
32 L.H., Daily Totals		\$1291.20		\$1949.60	\$40.35	\$60.35

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew E-7						
1 Struc. Steel Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$48.78	\$84.75
4 Struc. Steel Workers	49.35	1579.20	88.25	2824.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Welder Foreman (outside)	51.35	410.80	91.80	734.40		
2 Welders	49.35	789.60	88.25	1412.00		
1 Lattice Boom Crane, 90 Ton		1497.00		1646.70		
2 Welders, gas engine, 300 amp		243.20		267.52	21.75	23.93
80 L.H., Daily Totals		\$5643.00		\$8694.22	\$70.54	\$108.68
Crew E-8						
1 Struc. Steel Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$48.56	\$83.97
4 Struc. Steel Workers	49.35	1579.20	88.25	2824.00		
1 Welder Foreman (outside)	51.35	410.80	91.80	734.40		
4 Welders	49.35	1579.20	88.25	2824.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Lattice Boom Crane, 90 Ton		1497.00		1646.70		
4 Welders, gas engine, 300 amp		486.40		535.04	19.07	20.98
104 L.H., Daily Totals		\$7033.80		\$10914.14	\$67.63	\$104.94
Crew E-9						
2 Struc. Steel Foremen (outside)	\$51.35	\$821.60	\$91.80	\$1468.80	\$48.83	\$84.99
5 Struc. Steel Workers	49.35	1974.00	88.25	3530.00		
1 Welder Foreman (outside)	51.35	410.80	91.80	734.40		
5 Welders	49.35	1974.00	88.25	3530.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Lattice Boom Crane, 90 Ton		1497.00		1646.70		
5 Welders, gas engine, 300 amp		608.00		668.80	16.45	18.09
128 L.H., Daily Totals		\$8355.80		\$13194.30	\$65.28	\$103.08
Crew E-10						
1 Welder Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$50.35	\$90.03
1 Welder	49.35	394.80	88.25	706.00		
1 Welder, gas engine, 300 amp		121.60		133.76		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	24.13	26.54
16 L.H., Daily Totals		\$1191.60		\$1865.00	\$74.47	\$116.56
Crew E-11						
2 Painters, Struc. Steel	\$39.30	\$628.80	\$71.15	\$1138.40	\$39.61	\$65.96
1 Building Laborer	35.10	280.80	54.00	432.00		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Air Compressor, 250 cfm		177.00		194.70		
1 Sandblaster, portable, 3 C.F.		20.40		22.44		
1 Set Sand Blasting Accessories		13.35		14.69	6.59	7.24
32 L.H., Daily Totals		\$1478.35		\$2342.63	\$46.20	\$73.21
Crew E-12						
1 Welder Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$48.05	\$79.67
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Welder, gas engine, 300 amp		121.60		133.76	7.60	8.36
16 L.H., Daily Totals		\$890.40		\$1408.56	\$55.65	\$88.03
Crew E-13						
1 Welder Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$49.15	\$83.72
5 Equip. Oper. (light)	44.75	179.00	67.55	270.20		
1 Welder, gas engine, 300 amp		121.60		133.76	10.13	11.15
12 L.H., Daily Totals		\$711.40		\$1138.36	\$59.28	\$94.86

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew E-14	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Welder Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$51.35	\$91.80
1 Welder, gas engine, 300 amp		121.60		133.76	15.20	16.72
8 L.H., Daily Totals		\$532.40		\$868.16	\$66.55	\$108.52
Crew E-16	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Welder Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$50.35	\$90.03
1 Welder	49.35	394.80	88.25	706.00		
1 Welder, gas engine, 300 amp		121.60		133.76	7.60	8.36
16 L.H., Daily Totals		\$927.20		\$1574.16	\$57.95	\$98.39
Crew E-17	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Struc. Steel Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$50.35	\$90.03
1 Structural Steel Worker	49.35	394.80	88.25	706.00		
16 L.H., Daily Totals		\$805.60		\$1440.40	\$50.35	\$90.03
Crew E-18	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Struc. Steel Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$49.19	\$85.36
3 Structural Steel Workers	49.35	1184.40	88.25	2118.00		
1 Equipment Operator (med.)	46.55	372.40	70.25	562.00		
1 Lattice Boom Crane, 20 Ton		950.65		1045.71	23.77	26.14
40 L.H., Daily Totals		\$2918.25		\$4460.11	\$72.96	\$111.50
Crew E-19	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Structural Steel Worker	\$49.35	\$394.80	\$88.25	\$706.00	\$48.48	\$82.53
1 Struc. Steel Foreman (outside)	51.35	410.80	91.80	734.40		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Lattice Boom Crane, 20 Ton		950.65		1045.71	39.61	43.57
24 L.H., Daily Totals		\$2114.25		\$3026.51	\$88.09	\$126.10
Crew E-20	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Struc. Steel Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$48.39	\$83.43
5 Structural Steel Workers	49.35	1974.00	88.25	3530.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Oiler	41.25	330.00	62.25	498.00		
1 Lattice Boom Crane, 40 Ton		1163.00		1279.30	18.17	19.99
64 L.H., Daily Totals		\$4260.20		\$6618.90	\$66.57	\$103.42
Crew E-22	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Skilled Worker Foreman (out)	\$47.40	\$379.20	\$73.30	\$586.40	\$46.07	\$71.23
2 Skilled Workers	45.40	726.40	70.20	1123.20		
24 L.H., Daily Totals		\$1105.60		\$1709.60	\$46.07	\$71.23
Crew E-24	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
3 Structural Steel Workers	\$49.35	\$1184.40	\$88.25	\$2118.00	\$48.65	\$83.75
1 Equipment Operator (med.)	46.55	372.40	70.25	562.00		
1 Hyd. Crane, 25 Ton		697.20		766.92	21.79	23.97
32 L.H., Daily Totals		\$2254.00		\$3446.92	\$70.44	\$107.72
Crew E-25	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Welder Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$51.35	\$91.80
1 Cutting Torch		10.80		11.88		
1 Set of Gases		86.40		95.04	12.15	13.37
8 L.H., Daily Totals		\$508.00		\$841.32	\$63.50	\$105.17
Crew F-3	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
4 Carpenters	\$44.10	\$1411.20	\$67.85	\$2171.20	\$44.84	\$68.71
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Hyd. Crane, 12 Ton		612.00		673.20	15.30	16.83
40 L.H., Daily Totals		\$2405.60		\$3421.60	\$60.14	\$85.54

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew F-4	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
4 Carpenters	\$44.10	\$1411.20	\$67.85	\$2171.20	\$44.84	\$68.71
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Hyd. Crane, 55 Ton		1100.00		1210.00	22.87	25.39
48 L.H., Daily Totals		\$3223.60		\$4456.40	\$67.84	\$91.80
Crew F-5	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$44.80	\$68.71
3 Carpenters	44.10	1058.40	67.85	1628.40		
32 L.H., Daily Totals		\$1427.20		\$2196.00	\$44.80	\$68.71
Crew F-6	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
2 Carpenters	\$44.10	\$705.60	\$67.85	\$1085.60	\$41.24	\$63.50
2 Building Laborers	35.10	561.60	54.00	864.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Hyd. Crane, 12 Ton		612.00		673.20	15.30	16.83
40 L.H., Daily Totals		\$2261.60		\$3200.00	\$56.54	\$85.54
Crew F-7	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
2 Carpenters	\$44.10	\$705.60	\$67.85	\$1085.60	\$39.60	\$60.14
2 Building Laborers	35.10	561.60	54.00	864.00		
32 L.H., Daily Totals		\$1267.20		\$1949.60	\$39.60	\$60.14
Crew G-1	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Roofer Foreman (outside)	\$39.40	\$315.20	\$66.05	\$528.40	\$34.96	\$56.54
4 Roofers, Composition	37.40	1196.80	62.70	2006.40		
2 Roofer Helpers	27.85	445.60	46.70	747.20		
1 Application Equipment		179.20		197.12		
1 Tar Kettle/Pot		91.00		100.10		
1 Crew Truck		182.40		200.64	8.08	8.85
56 L.H., Daily Totals		\$2410.20		\$3779.86	\$43.04	\$66.57
Crew G-2	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Plasterer	\$40.35	\$322.80	\$60.40	\$483.20	\$37.07	\$56.54
1 Plasterer Helper	35.75	286.00	53.50	428.00		
1 Building Laborer	35.10	280.80	54.00	432.00		
1 Grout Pump, 50 C.F./hr.		127.40		140.14	5.31	5.81
24 L.H., Daily Totals		\$1017.00		\$1483.34	\$42.38	\$63.50
Crew G-2A	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Roofer, composition	\$37.40	\$299.20	\$62.70	\$501.60	\$33.45	\$53.75
1 Roofer Helper	27.85	222.80	46.70	373.60		
1 Building Laborer	35.10	280.80	54.00	432.00		
1 Foam spray rig, trailer-mtd.		503.85		554.24		
1 Pickup Truck, 3/4 Ton		127.00		139.70	26.29	28.75
24 L.H., Daily Totals		\$1433.65		\$2001.14	\$59.74	\$85.54
Crew G-3	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
2 Sheet Metal Workers	\$52.15	\$834.40	\$79.50	\$1272.00	\$43.63	\$66.57
2 Building Laborers	35.10	561.60	54.00	864.00		
32 L.H., Daily Totals		\$1396.00		\$2136.00	\$43.63	\$66.57
Crew G-4	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
1 Labor Foreman (outside)	\$37.10	\$296.80	\$57.10	\$456.80	\$35.77	\$56.54
2 Building Laborers	35.10	561.60	54.00	864.00		
1 Flatbed Truck, Gas, 1.5 Ton		211.00		232.10		
1 Air Compressor, 160 cfm		136.80		150.48	14.49	15.81
24 L.H., Daily Totals		\$1206.20		\$1703.38	\$50.26	\$75.54

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew G-5						
erman (outside)	\$39.40	\$315.20	\$66.05	\$528.40	\$33.98	\$56.97
omposition	37.40	598.40	62.70	1003.20		
ers	27.85	445.60	46.70	747.20		
Equipment		179.20		197.12	4.48	4.93
Totals		\$1538.40		\$2475.92	\$38.46	\$61.90
Crew G-6A						
omposition	\$37.40	\$598.40	\$62.70	\$1003.20	\$37.40	\$62.70
pressor, Electric		10.10		11.11		
Nailers		45.70		50.27	3.49	3.84
Totals		\$654.20		\$1064.58	\$40.89	\$66.54
Crew G-7						
Corner	\$44.10	\$352.80	\$67.85	\$542.80	\$44.10	\$67.85
Small		10.10		11.11		
Electric		22.85		25.14	4.12	4.53
Totals		\$385.75		\$579.04	\$48.22	\$72.38
Crew H-1						
Workers	\$42.75	\$684.00	\$64.75	\$1036.00	\$46.05	\$76.50
al	49.35	789.60	88.25	1412.00		
Totals		\$1473.60		\$2448.00	\$46.05	\$76.50
Crew H-2						
borer	\$42.75	\$684.00	\$64.75	\$1036.00	\$40.20	\$61.17
ly	35.10	280.80	54.00	432.00		
Totals		\$964.80		\$1468.00	\$40.20	\$61.17
Crew H-3						
	\$42.75	\$342.00	\$64.75	\$518.00	\$38.02	\$57.98
	33.30	266.40	51.20	409.60		
Totals		\$608.40		\$927.60	\$38.02	\$57.98
Crew H-4						
Helper	\$44.10	\$352.80	\$67.85	\$542.80	\$41.27	\$63.03
	33.30	266.40	51.20	409.60		
	51.55	206.20	77.05	308.20		
Totals		\$825.40		\$1260.60	\$41.27	\$63.03
Crew J-1						
Helpers	\$40.35	\$968.40	\$60.40	\$1449.60	\$38.51	\$57.64
Machine, 6 C.F.	35.75	572.00	53.50	856.00		
		130.80		143.88	3.27	3.60
Totals		\$1671.20		\$2449.48	\$41.78	\$61.24
Crew J-2						
Helpers	\$40.35	\$968.40	\$60.40	\$1449.60	\$38.63	\$57.63
	35.75	572.00	53.50	856.00		
	39.25	314.00	57.60	460.80		
Machine, 6 C.F.		130.80		143.88	2.73	3.00
Totals		\$1985.20		\$2910.28	\$41.36	\$60.63
Crew J-3						
Worker	\$40.40	\$323.20	\$59.35	\$474.80	\$37.08	\$54.48
Helper	33.75	270.00	49.60	396.80		
Grinder, 22" path		84.70		93.17		
Mixer		177.00		194.70	16.36	17.99
Totals		\$854.90		\$1159.47	\$53.43	\$72.47

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew J-4						
2 Cement Finishers	\$42.35	\$677.60	\$62.30	\$996.80	\$39.93	\$59.53
1 Laborer	35.10	280.80	54.00	432.00		
1 Floor Grinder, 22" path		84.70		93.17		
1 Floor Edger, 7" path		38.20		42.02		
1 Vacuum Pick-Up System		59.80		65.78	7.61	8.37
24 L.H., Daily Totals		\$1141.10		\$1629.77	\$47.55	\$67.91
Crew J-4A						
2 Cement Finishers	\$42.35	\$677.60	\$62.30	\$996.80	\$38.73	\$58.15
2 Laborers	35.10	561.60	54.00	864.00		
1 Floor Grinder, 22" path		84.70		93.17		
1 Floor Edger, 7" path		38.20		42.02		
1 Vacuum Pick-Up System		59.80		65.78		
1 Floor Auto Scrubber		178.10		195.91	11.28	12.40
32 L.H., Daily Totals		\$1600.00		\$2257.68	\$50.00	\$70.55
Crew J-4B						
1 Laborer	\$35.10	\$280.80	\$54.00	\$432.00	\$35.10	\$54.00
1 Floor Auto Scrubber		178.10		195.91	22.26	24.49
8 L.H., Daily Totals		\$458.90		\$627.91	\$57.36	\$78.49
Crew J-6						
2 Painters	\$38.25	\$612.00	\$57.20	\$915.20	\$39.09	\$58.99
1 Building Laborer	35.10	280.80	54.00	432.00		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Air Compressor, 250 cfm		177.00		194.70		
1 Sandblaster, portable, 3 C.F.		20.40		22.44		
1 Set Sand Blasting Accessories		13.35		14.69	6.59	7.24
32 L.H., Daily Totals		\$1461.55		\$2119.43	\$45.67	\$66.23
Crew K-1						
1 Carpenter	\$44.10	\$352.80	\$67.85	\$542.80	\$39.23	\$59.98
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	16.52	18.18
16 L.H., Daily Totals		\$892.00		\$1250.44	\$55.75	\$78.15
Crew K-2						
1 Struc. Steel Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$45.02	\$77.38
1 Struc. Steel Worker	49.35	394.80	88.25	706.00		
1 Truck Driver (light)	34.35	274.80	52.10	416.80		
1 Flatbed Truck, Gas, 3 Ton		264.40		290.84	11.02	12.12
24 L.H., Daily Totals		\$1344.80		\$2148.04	\$56.03	\$89.50
Crew L-1						
1 Electrician	\$51.55	\$412.40	\$77.05	\$616.40	\$53.08	\$79.70
1 Plumber	54.60	436.80	82.35	658.80		
16 L.H., Daily Totals		\$849.20		\$1275.20	\$53.08	\$79.70
Crew L-2						
1 Carpenter	\$44.10	\$352.80	\$67.85	\$542.80	\$38.70	\$59.52
1 Carpenter Helper	33.30	266.40	51.20	409.60		
16 L.H., Daily Totals		\$619.20		\$952.40	\$38.70	\$59.52
Crew L-3						
1 Carpenter	\$44.10	\$352.80	\$67.85	\$542.80	\$47.98	\$73.06
5 Electrician	51.55	206.20	77.05	308.20		
5 Sheet Metal Worker	52.15	208.60	79.50	318.00		
16 L.H., Daily Totals		\$767.60		\$1169.00	\$47.98	\$73.06

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew L-3A						
1 Carpenter Foreman (outside)	\$46.10	\$368.80	\$70.95	\$567.60	\$48.12	\$73.80
5 Sheet Metal Worker	52.15	208.60	79.50	318.00		
12 L.H., Daily Totals		\$577.40		\$885.60	\$48.12	\$73.80
Crew L-4						
2 Skilled Workers	\$45.40	\$726.40	\$70.20	\$1123.20	\$41.37	\$63.87
1 Helper	33.30	266.40	51.20	409.60		
24 L.H., Daily Totals		\$992.80		\$1532.80	\$41.37	\$63.87
Crew L-5						
1 Struc. Steel Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$49.41	\$86.46
5 Struc. Steel Workers	49.35	1974.00	88.25	3530.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Hyd. Crane, 25 Ton		697.20		766.92	12.45	13.70
56 L.H., Daily Totals		\$3464.40		\$5608.52	\$61.86	\$100.15
Crew L-5A						
1 Struc. Steel Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$49.46	\$85.11
2 Structural Steel Workers	49.35	789.60	88.25	1412.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 S.P. Crane, 4x4, 25 Ton		565.20		621.72	17.66	19.43
32 L.H., Daily Totals		\$2148.00		\$3345.32	\$67.13	\$104.54
Crew L-5B						
1 Struc. Steel Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$50.40	\$80.53
2 Structural Steel Workers	49.35	789.60	88.25	1412.00		
2 Electricians	51.55	824.80	77.05	1232.80		
2 Steamfitters/Pipefitters	55.70	891.20	84.00	1344.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. Oiler	41.25	330.00	62.25	498.00		
1 Hyd. Crane, 80 Ton		1554.00		1709.40	21.58	23.74
72 L.H., Daily Totals		\$5182.80		\$7507.80	\$71.98	\$104.28
Crew L-6						
1 Plumber	\$54.60	\$436.80	\$82.35	\$658.80	\$53.58	\$80.58
5 Electrician	51.55	206.20	77.05	308.20		
12 L.H., Daily Totals		\$643.00		\$967.00	\$53.58	\$80.58
Crew L-7						
2 Carpenters	\$44.10	\$705.60	\$67.85	\$1085.60	\$42.59	\$65.21
1 Building Laborer	35.10	280.80	54.00	432.00		
5 Electrician	51.55	206.20	77.05	308.20		
28 L.H., Daily Totals		\$1192.60		\$1825.80	\$42.59	\$65.21
Crew L-8						
2 Carpenters	\$44.10	\$705.60	\$67.85	\$1085.60	\$46.20	\$70.75
5 Plumber	54.60	218.40	82.35	329.40		
20 L.H., Daily Totals		\$924.00		\$1415.00	\$46.20	\$70.75
Crew L-9						
1 Labor Foreman (inside)	\$35.60	\$284.80	\$54.80	\$438.40	\$40.21	\$64.35
2 Building Laborers	35.10	561.60	54.00	864.00		
1 Struc. Steel Worker	49.35	394.80	88.25	706.00		
5 Electrician	51.55	206.20	77.05	308.20		
36 L.H., Daily Totals		\$1447.40		\$2316.60	\$40.21	\$64.35

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew L-10						
1 Struc. Steel Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$49.50	\$86.50
1 Structural Steel Worker	49.35	394.80	88.25	706.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Hyd. Crane, 12 Ton		612.00		673.20		25.50
24 L.H., Daily Totals		\$1800.00		\$2690.80	\$75.00	\$125.00
Crew L-11						
2 Wreckers	\$35.10	\$561.60	\$59.40	\$950.40	\$40.60	\$64.60
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Equip. Oper. (light)	44.75	358.00	67.55	540.40		
1 Hyd. Excavator, 2.5 C.Y.		1655.00		1817.20		
1 Loader, Skid Steer, 78 H.P.		281.20		309.32		60.41
32 L.H., Daily Totals		\$3235.20		\$4194.52	\$101.10	\$127.10
Crew M-1						
3 Elevator Constructors	\$70.85	\$1700.40	\$106.15	\$2547.60	\$67.31	\$104.31
1 Elevator Apprentice	56.70	453.60	84.95	679.60		
5 Hand Tools		46.00		50.60		1.44
32 L.H., Daily Totals		\$2200.00		\$3277.80	\$68.75	\$104.75
Crew M-3						
1 Electrician Foreman (outside)	\$53.55	\$428.40	\$80.05	\$640.40	\$53.61	\$80.61
1 Common Laborer	35.10	280.80	54.00	432.00		
25 Equipment Operator, Med.	46.55	93.10	70.25	140.50		
1 Elevator Constructor	70.85	566.80	106.15	849.20		
1 Elevator Apprentice	56.70	453.60	84.95	679.60		
25 S.P. Crane, 4x4, 20 Ton		129.85		142.84		3.80
34 L.H., Daily Totals		\$1952.55		\$2684.53	\$57.40	\$80.40
Crew M-4						
1 Electrician Foreman (outside)	\$53.55	\$428.40	\$80.05	\$640.40	\$52.99	\$80.99
1 Common Laborer	35.10	280.80	54.00	432.00		
25 Equipment Operator, Crane	47.80	95.60	72.15	144.30		
25 Equipment Operator, Oiler	41.25	82.50	62.25	124.50		
1 Elevator Constructor	70.85	566.80	106.15	849.20		
1 Elevator Apprentice	56.70	453.60	84.95	679.60		
25 S.P. Crane, 4x4, 40 Ton		166.00		182.60		4.61
36 L.H., Daily Totals		\$2073.70		\$3052.60	\$57.60	\$80.60
Crew Q-1						
1 Plumber	\$54.60	\$436.80	\$82.35	\$658.80	\$49.15	\$74.15
1 Plumber Apprentice	43.70	349.60	65.90	527.20		
16 L.H., Daily Totals		\$786.40		\$1186.00	\$49.15	\$74.15
Crew Q-1A						
25 Plumber Foreman (outside)	\$56.60	\$113.20	\$85.35	\$170.70	\$55.00	\$85.00
1 Plumber	54.60	436.80	82.35	658.80		
10 L.H., Daily Totals		\$550.00		\$829.50	\$55.00	\$85.00
Crew Q-1C						
1 Plumber	\$54.60	\$436.80	\$82.35	\$658.80	\$48.25	\$73.25
1 Plumber Apprentice	43.70	349.60	65.90	527.20		
1 Equip. Oper. (medium)	46.55	372.40	70.25	562.00		
1 Trencher, Chain Type, 8' 0"		2848.00		3132.80		118.57
24 L.H., Daily Totals		\$4606.80		\$4980.80	\$166.95	\$207.95
Crew Q-2						
2 Plumbers	\$54.60	\$873.60	\$82.35	\$1317.60	\$50.87	\$75.87
1 Plumber Apprentice	43.70	349.60	65.90	527.20		
24 L.H., Daily Totals		\$1223.20		\$1844.80	\$50.97	\$75.97

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew Q-3						
Plumber Foreman (inside)	\$55.10	\$440.80	\$83.10	\$664.80	\$52.00	\$78.42
Plumber Apprentice	54.60	873.60	82.35	1317.60		
Plumber Apprentice	43.70	349.60	65.90	527.20		
L.H., Daily Totals		\$1664.00		\$2509.60	\$52.00	\$78.42
Crew Q-4						
Plumber Foreman (inside)	\$55.10	\$440.80	\$83.10	\$664.80	\$52.00	\$78.42
Plumber Apprentice	54.60	436.80	82.35	658.80		
Plumber Apprentice	54.60	436.80	82.35	658.80		
Plumber Apprentice	43.70	349.60	65.90	527.20		
Electrician, 300 amp		36.90		40.59	1.15	1.27
L.H., Daily Totals		\$1700.90		\$2550.19	\$53.15	\$79.69
Crew Q-5						
Steamfitter Foreman (inside)	\$55.70	\$445.60	\$84.00	\$672.00	\$50.13	\$75.60
Steamfitter Apprentice	44.55	356.40	67.20	537.60		
L.H., Daily Totals		\$802.00		\$1209.60	\$50.13	\$75.60
Crew Q-6						
Steamfitter Foreman (inside)	\$55.70	\$891.20	\$84.00	\$1344.00	\$51.98	\$78.40
Steamfitter Apprentice	44.55	356.40	67.20	537.60		
L.H., Daily Totals		\$1247.60		\$1881.60	\$51.98	\$78.40
Crew Q-7						
Steamfitter Foreman (inside)	\$56.20	\$449.60	\$84.75	\$678.00	\$53.04	\$79.99
Steamfitter Apprentice	55.70	891.20	84.00	1344.00		
Steamfitter Apprentice	44.55	356.40	67.20	537.60		
L.H., Daily Totals		\$1697.20		\$2559.60	\$53.04	\$79.99
Crew Q-8						
Steamfitter Foreman (inside)	\$56.20	\$449.60	\$84.75	\$678.00	\$53.04	\$79.99
Steamfitter Apprentice	55.70	445.60	84.00	672.00		
Steamfitter Apprentice	55.70	445.60	84.00	672.00		
Steamfitter Apprentice	44.55	356.40	67.20	537.60		
Welder, electric, 300 amp		36.90		40.59	1.15	1.27
L.H., Daily Totals		\$1734.10		\$2600.19	\$54.19	\$81.26
Crew Q-9						
Sheet Metal Worker Foreman (inside)	\$52.15	\$417.20	\$79.50	\$636.00	\$46.92	\$71.53
Sheet Metal Worker Apprentice	41.70	333.60	63.55	508.40		
L.H., Daily Totals		\$750.80		\$1144.40	\$46.92	\$71.53
Crew Q-10						
Sheet Metal Worker Foreman (inside)	\$52.15	\$834.40	\$79.50	\$1272.00	\$48.67	\$74.18
Sheet Metal Worker Apprentice	41.70	333.60	63.55	508.40		
L.H., Daily Totals		\$1168.00		\$1780.40	\$48.67	\$74.18
Crew Q-11						
Sheet Metal Worker Foreman (inside)	\$52.65	\$421.20	\$80.25	\$642.00	\$49.66	\$75.70
Sheet Metal Worker Apprentice	52.15	834.40	79.50	1272.00		
Sheet Metal Worker Apprentice	41.70	333.60	63.55	508.40		
L.H., Daily Totals		\$1589.20		\$2422.40	\$49.66	\$75.70
Crew Q-12						
Installer Foreman (inside)	\$54.05	\$432.40	\$81.55	\$652.40	\$48.65	\$73.40
Installer Apprentice	43.25	346.00	65.25	522.00		
L.H., Daily Totals		\$778.40		\$1174.40	\$48.65	\$73.40

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew Q-13						
1 Sprinkler Foreman (inside)	\$54.55	\$436.40	\$82.30	\$658.40	\$51.48	\$77.66
2 Sprinkler Installers	54.05	864.80	81.55	1304.80		
1 Sprinkler Apprentice	43.25	346.00	65.25	522.00		
32 L.H., Daily Totals		\$1647.20		\$2485.20	\$51.48	\$77.66
Crew Q-14						
1 Asbestos Worker	\$48.85	\$390.80	\$76.10	\$608.80	\$43.98	\$68.50
1 Asbestos Apprentice	39.10	312.80	60.90	487.20		
16 L.H., Daily Totals		\$703.60		\$1096.00	\$43.98	\$68.50
Crew Q-15						
1 Plumber	\$54.60	\$436.80	\$82.35	\$658.80	\$49.15	\$74.13
1 Plumber Apprentice	43.70	349.60	65.90	527.20		
1 Welder, electric, 300 amp		36.90		40.59	2.31	2.54
16 L.H., Daily Totals		\$823.30		\$1226.59	\$51.46	\$76.66
Crew Q-16						
2 Plumbers	\$54.60	\$873.60	\$82.35	\$1317.60	\$50.97	\$76.87
1 Plumber Apprentice	43.70	349.60	65.90	527.20		
1 Welder, electric, 300 amp		36.90		40.59	1.54	1.69
24 L.H., Daily Totals		\$1260.10		\$1885.39	\$52.50	\$78.56
Crew Q-17						
1 Steamfitter	\$55.70	\$445.60	\$84.00	\$672.00	\$50.13	\$75.60
1 Steamfitter Apprentice	44.55	356.40	67.20	537.60		
1 Welder, electric, 300 amp		36.90		40.59	2.31	2.54
16 L.H., Daily Totals		\$838.90		\$1250.19	\$52.43	\$78.14
Crew Q-17A						
1 Steamfitter	\$55.70	\$445.60	\$84.00	\$672.00	\$49.35	\$74.45
1 Steamfitter Apprentice	44.55	356.40	67.20	537.60		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Hyd. Crane, 12 Ton		612.00		673.20		
1 Welder, electric, 300 amp		36.90		40.59	27.04	29.74
24 L.H., Daily Totals		\$1833.30		\$2500.59	\$76.39	\$104.19
Crew Q-18						
2 Steamfitters	\$55.70	\$891.20	\$84.00	\$1344.00	\$50.97	\$76.87
1 Steamfitter Apprentice	44.55	356.40	67.20	537.60		
1 Welder, electric, 300 amp		36.90		40.59	1.54	1.69
24 L.H., Daily Totals		\$1284.50		\$1922.19	\$53.52	\$80.09
Crew Q-19						
1 Steamfitter	\$55.70	\$445.60	\$84.00	\$672.00	\$50.60	\$76.08
1 Steamfitter Apprentice	44.55	356.40	67.20	537.60		
1 Electrician	51.55	412.40	77.05	616.40		
24 L.H., Daily Totals		\$1214.40		\$1826.00	\$50.60	\$76.08
Crew Q-20						
1 Sheet Metal Worker	\$52.15	\$417.20	\$79.50	\$636.00	\$47.85	\$72.63
1 Sheet Metal Apprentice	41.70	333.60	63.55	508.40		
5 Electrician	51.55	206.20	77.05	308.20		
20 L.H., Daily Totals		\$957.00		\$1452.60	\$47.85	\$72.63
Crew Q-21						
2 Steamfitters	\$55.70	\$891.20	\$84.00	\$1344.00	\$51.88	\$78.06
1 Steamfitter Apprentice	44.55	356.40	67.20	537.60		
1 Electrician	51.55	412.40	77.05	616.40		
32 L.H., Daily Totals		\$1660.00		\$2498.00	\$51.88	\$78.06

Crews

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew Q-22						
1 Plumber	\$54.60	\$436.80	\$82.35	\$658.80	\$49.15	\$74.13
1 Plumber Apprentice	43.70	349.60	65.90	527.20		
1 Hyd. Crane, 12 Ton		612.00		673.20	38.25	42.08
16 L.H., Daily Totals		\$1398.40		\$1859.20	\$87.40	\$116.20
Crew Q-22A						
1 Plumber	\$54.60	\$436.80	\$82.35	\$658.80	\$45.30	\$68.60
1 Plumber Apprentice	43.70	349.60	65.90	527.20		
1 Laborer	35.10	280.80	54.00	432.00		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 Hyd. Crane, 12 Ton		612.00		673.20	19.13	21.04
32 L.H., Daily Totals		\$2061.60		\$2868.40	\$64.42	\$89.64
Crew Q-23						
1 Plumber Foreman (outside)	\$56.60	\$452.80	\$85.35	\$682.80	\$52.58	\$79.32
1 Plumber	54.60	436.80	82.35	658.80		
1 Equip. Oper. (med.)	46.55	372.40	70.25	562.00		
1 Lattice Boom Crane, 20 Ton		950.65		1045.71	39.61	43.57
24 L.H., Daily Totals		\$2212.65		\$2949.32	\$92.19	\$122.89
Crew R-1						
1 Electrician Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$45.55	\$68.56
3 Electricians	51.55	1237.20	77.05	1849.20		
2 Helpers	33.30	532.80	51.20	819.20		
48 L.H., Daily Totals		\$2186.40		\$3290.80	\$45.55	\$68.56
Crew R-1A						
1 Electrician	\$51.55	\$412.40	\$77.05	\$616.40	\$42.42	\$64.13
1 Helper	33.30	266.40	51.20	409.60		
16 L.H., Daily Totals		\$678.80		\$1026.00	\$42.42	\$64.13
Crew R-2						
1 Electrician Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$45.87	\$69.07
3 Electricians	51.55	1237.20	77.05	1849.20		
2 Helpers	33.30	532.80	51.20	819.20		
1 Equip. Oper. (crane)	47.80	382.40	72.15	577.20		
1 S.P. Crane, 4x4, 5 Ton		264.60		291.06	4.72	5.20
56 L.H., Daily Totals		\$2833.40		\$4159.06	\$50.60	\$74.27
Crew R-3						
1 Electrician Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$51.00	\$76.37
1 Electrician	51.55	412.40	77.05	616.40		
1 Equip. Oper. (crane)	47.80	191.20	72.15	288.60		
1 S.P. Crane, 4x4, 5 Ton		132.30		145.53	6.62	7.28
20 L.H., Daily Totals		\$1152.30		\$1672.93	\$57.62	\$83.65
Crew R-4						
1 Struc. Steel Foreman (outside)	\$51.35	\$410.80	\$91.80	\$734.40	\$50.19	\$86.72
3 Struc. Steel Workers	49.35	1184.40	88.25	2118.00		
1 Electrician	51.55	412.40	77.05	616.40		
1 Welder, gas engine, 300 amp		121.60		133.76	3.04	3.34
40 L.H., Daily Totals		\$2129.20		\$3602.56	\$53.23	\$90.06

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew R-5						
1 Electrician Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$44.96	\$67.96
4 Electrician Linemen	51.55	1649.60	77.05	2465.60		
2 Electrician Operators	51.55	824.80	77.05	1232.80		
4 Electrician Groundmen	33.30	1065.60	51.20	1638.40		
1 Crew Truck		182.40		200.64		
1 Flatbed Truck, 20,000 GW		215.80		237.38		
1 Pickup Truck, 3/4 Ton		127.00		139.70		
2 Hyd. Crane, 55 Ton		220.00		242.00		
2 Hyd. Crane, 12 Ton		122.40		134.64		
2 Earth Auger, Truck-Mtd.		80.68		88.75		
1 Tractor w/Winch		382.20		420.42		
88 L.H., Daily Totals		\$5286.88		\$7422.73	\$60.58	\$88.75
Crew R-6						
1 Electrician Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$44.96	\$67.96
4 Electrician Linemen	51.55	1649.60	77.05	2465.60		
2 Electrician Operators	51.55	824.80	77.05	1232.80		
4 Electrician Groundmen	33.30	1065.60	51.20	1638.40		
1 Crew Truck		182.40		200.64		
1 Flatbed Truck, 20,000 GW		215.80		237.38		
1 Pickup Truck, 3/4 Ton		127.00		139.70		
2 Hyd. Crane, 55 Ton		220.00		242.00		
2 Hyd. Crane, 12 Ton		122.40		134.64		
2 Earth Auger, Truck-Mtd.		80.68		88.75		
1 Tractor w/Winch		382.20		420.42		
3 Cable Trailers		563.70		620.07		
5 Tensioning Rig		186.88		205.56		
5 Cable Pulling Rig		1092.50		1201.75	36.06	40.00
88 L.H., Daily Totals		\$7129.95		\$9450.11	\$81.07	\$100.00
Crew R-7						
1 Electrician Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$36.41	\$54.41
5 Electrician Groundmen	33.30	1332.00	51.20	2048.00		
1 Crew Truck		182.40		200.64	3.80	4.40
48 L.H., Daily Totals		\$1930.80		\$2871.04	\$40.23	\$54.41
Crew R-8						
1 Electrician Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$45.55	\$68.56
3 Electrician Linemen	51.55	1237.20	77.05	1849.20		
2 Electrician Groundmen	33.30	532.80	51.20	819.20		
1 Pickup Truck, 3/4 Ton		127.00		139.70		
1 Crew Truck		182.40		200.64	6.45	7.45
48 L.H., Daily Totals		\$2495.80		\$3631.14	\$50.00	\$74.27
Crew R-9						
1 Electrician Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$42.49	\$64.49
1 Electrician Lineman	51.55	412.40	77.05	616.40		
2 Electrician Operators	51.55	824.80	77.05	1232.80		
4 Electrician Groundmen	33.30	1065.60	51.20	1638.40		
1 Pickup Truck, 3/4 Ton		127.00		139.70		
1 Crew Truck		182.40		200.64	4.93	5.93
64 L.H., Daily Totals		\$3028.60		\$4450.34	\$47.32	\$70.32
Crew R-10						
1 Electrician Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$48.59	\$72.59
4 Electrician Linemen	51.55	1649.60	77.05	2465.60		
1 Electrician Groundman	33.30	266.40	51.20	409.60		
1 Crew Truck		182.40		200.64		
3 Tram Cars		345.90		380.49	11.00	12.00
48 L.H., Daily Totals		\$2860.70		\$4078.73	\$59.60	\$88.75

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew R-11						
Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$48.74	\$73.16
Electrician	51.55	1649.60	77.05	2465.60		
Equipment Operator (crane)	47.80	382.40	72.15	577.20		
Construction Laborer	35.10	280.80	54.00	432.00		
Crane, 12 Ton		182.40		200.64		
Daily Totals		\$612.00		\$673.20	14.19	15.60
		\$3523.60		\$4971.04	\$62.92	\$88.77
Crew R-12						
Foreman (inside)	\$44.60	\$356.80	\$68.65	\$549.20	\$41.57	\$64.96
Electrician	44.10	1411.20	67.85	2171.20		
Construction Laborers	35.10	1123.20	54.00	1728.00		
Equipment Operator (med.)	46.55	372.40	70.25	562.00		
Crane, H.P.	49.35	394.80	88.25	706.00		
Crane, 3/4 Ton		1243.00		1367.30		
Daily Totals		\$127.00		\$139.70	15.57	17.13
		\$5028.40		\$7223.40	\$57.14	\$82.08
Crew R-13						
Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$49.50	\$74.14
Electrician	51.55	1237.20	77.05	1849.20		
Equipment Operator (crane)	47.80	95.60	72.15	144.30		
Construction Laborer	41.25	330.00	62.25	498.00		
Crane, 33 Ton		177.90		195.69	4.24	4.66
Daily Totals		\$2257.10		\$3309.59	\$53.74	\$78.80
Crew R-15						
Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$50.50	\$75.59
Electrician	51.55	1649.60	77.05	2465.60		
Equipment Operator (light)	44.75	358.00	67.55	540.40		
Truck		324.20		356.62	6.75	7.43
Daily Totals		\$2748.20		\$3985.02	\$57.25	\$83.02
Crew R-18						
Foreman	\$52.05	\$104.10	\$77.80	\$155.60	\$40.36	\$61.20
Electrician	51.55	412.40	77.05	616.40		
Construction Laborer	33.30	532.80	51.20	819.20		
Daily Totals		\$1049.30		\$1591.20	\$40.36	\$61.20
Crew R-19						
Foreman	\$52.05	\$208.20	\$77.80	\$311.20	\$51.65	\$77.20
Electrician	51.55	824.80	77.05	1232.80		
Daily Totals		\$1033.00		\$1544.00	\$51.65	\$77.20
Crew R-21						
Foreman	\$52.05	\$416.40	\$77.80	\$622.40	\$51.55	\$77.07
Electrician	51.55	1237.20	77.05	1849.20		
Equipment Operator (med.)	46.55	37.24	70.25	56.20		
Crane, 4x4, 25 Ton		56.52		62.17	1.72	1.90
Daily Totals		\$1747.36		\$2589.97	\$53.27	\$78.96
Crew R-22						
Foreman	\$52.05	\$274.82	\$77.80	\$410.78	\$43.79	\$66.06
Electrician	33.30	532.80	51.20	819.20		
Construction Laborer	51.55	824.80	77.05	1232.80		
Daily Totals		\$1632.42		\$2462.78	\$43.79	\$66.06

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
	Hr.	Daily	Hr.	Daily	Bare Costs	Incl. O&P
Crew R-30						
.25 Electrician Foreman (outside)	\$53.55	\$107.10	\$80.05	\$160.10	\$41.58	\$63.10
1 Electrician	51.55	412.40	77.05	616.40		
2 Laborers, (Semi-Skilled)	35.10	561.60	54.00	864.00		
26 L.H., Daily Totals		\$1081.10		\$1640.50	\$41.58	\$63.10
Crew R-31						
1 Electrician	\$51.55	\$412.40	\$77.05	\$616.40	\$51.55	\$77.05
1 Core Drill, Electric, 2.5 H.P.		47.00		51.70	5.88	6.46
8 L.H., Daily Totals		\$459.40		\$668.10	\$57.42	\$83.51
Crew W-41E						
.5 Plumber Foreman (outside)	\$56.60	\$226.40	\$85.35	\$341.40	\$47.20	\$71.61
1 Plumber	54.60	436.80	82.35	658.80		
1 Laborer	35.10	280.80	54.00	432.00		
20 L.H., Daily Totals		\$944.00		\$1432.20	\$47.20	\$71.61

Historical Cost Indexes

The table below lists both the RSMeans Historical Cost Index based on Jan. 1, 1993 = 100 as well as the computed value of an index based on Jan. 1, 2012 costs. Since the Jan. 1, 2012 figure is estimated, space is left to write in the actual index figures as they become available through either the quarterly *Means Construction Cost Indexes* or as printed in

the *Engineering News-Record*. To compute the actual index based on Jan. 1, 2012 = 100, divide the Historical Cost Index for a particular year by the actual Jan. 1, 2012 Construction Cost Index. Space has been left to advance the index figures as the year progresses.

Year	Historical Cost Index Jan. 1, 1993 = 100		Current Index Based on Jan. 1, 2012 = 100		Year	Historical Cost Index Jan. 1, 1993 = 100		Current Index Based on Jan. 1, 2012 = 100		Year	Historical Cost Index Jan. 1, 1993 = 100		Current Index Based on Jan. 1, 2012 = 100	
	Est.	Actual	Est.	Actual		Actual	Est.	Actual		Actual	Est.	Actual		Actual
Oct 2012*					July 1997	112.8	58.5		July 1979	57.8		30.0		
July 2012*					1996	110.2	57.2		1978	53.5		27.7		
April 2012*					1995	107.6	55.8		1977	49.5		25.7		
Jan 2012*	192.8		100.0	100.0	1994	104.4	54.1		1976	46.9		24.3		
July 2011		185.7	96.3		1993	101.7	52.7		1975	44.8		23.2		
2010		183.5	95.2		1992	99.4	51.6		1974	41.4		21.5		
2009		180.1	93.4		1991	96.8	50.2		1973	37.7		19.6		
2008		180.4	93.6		1990	94.3	48.9		1972	34.8		18.0		
2007		169.4	87.9		1989	92.1	47.8		1971	32.1		16.6		
2006		162.0	84.0		1988	89.9	46.6		1970	28.7		14.9		
2005		151.6	78.6		1987	87.7	45.5		1969	26.9		14.0		
2004		143.7	74.5		1986	84.2	43.7		1968	24.9		12.9		
2003		132.0	68.5		1985	82.6	42.8		1967	23.5		12.2		
2002		128.7	66.8		1984	82.0	42.5		1966	22.7		11.8		
2001		125.1	64.9		1983	80.2	41.6		1965	21.7		11.3		
2000		120.9	62.7		1982	76.1	39.5		1964	21.2		11.0		
1999		117.6	61.0		1981	70.0	36.3		1963	20.7		10.7		
▼ 1998		115.1	59.7		▼ 1980	62.9	32.6		1962	20.2		10.5		

Adjustments to Costs

The Historical Cost Index can be used to convert National Average building costs at a particular time to the approximate building costs for some other time.

Time Adjustment using the Historical Cost Indexes:

$$\frac{\text{Index for Year A}}{\text{Index for Year B}} \times \text{Cost in Year B} = \text{Cost in Year A}$$

Example:

Estimate and compare construction costs for different years in the same city:

To estimate the National Average construction cost of a building in 1970, knowing that it cost \$900,000 in 2012:

INDEX in 1970 = 28.7

INDEX in 2012 = 192.8

INDEX 1970

$$\frac{\text{INDEX 1970}}{\text{INDEX 2012}} \times \text{Cost 2012} = \text{Cost 1970}$$

INDEX 2012

$$\frac{28.7}{192.8} \times \$900,000 = .149 \times \$900,000 = \$134,100$$

The construction cost of the building in 1970 is \$134,100.

Note: The City Cost Indexes for Canada can be used to convert U.S. National averages to local costs in Canadian dollars.

*Historical Cost Index updates and other resources are provided on the following website:
<http://www.reedconstructiondata.com/rsmeans/chgnotice/176028>

How to Use the City Cost Indexes

What you should know before you begin

The City Cost Indexes (CCI) are an extremely useful tool to use when you want to compare costs from city to city and region to region. The publication contains average construction cost indexes for 731 U.S. and Canadian cities covering over 930 three-digit zip code locations, as listed directly under each city.

Remember that a City Cost Index number is a percentage ratio of a specific city's cost to the national average cost of the same item at a stated time period.

In other words, these index figures represent relative construction costs (or, if you prefer, multipliers) for Material and Installation costs, as well as the weighted average for Total In Place costs for each CSI MasterFormat division. Installation costs include both labor and equipment rental costs. When estimating equipment rental rates only, use a specific location, use 015433 CONTRACTOR EQUIPMENT index. The 30 City Average Index is the average of 30 major U.S. cities and represents a National Average.

Index figures for both material and installation are based on the national city average of 100 and represent the cost relationship as of July 1, 2011. The index for each division is computed from representative material and labor quantities for that division. The national average for each city is a weighted total of the components involved, but does not include relative productivity between trades or regions.

Changes occur in local material prices, labor rates, and equipment rental rates, (including fuel costs) the impact of these changes should be accurately measured by the change in the City Cost Index for each particular city (as compared to the 30 City Average).

Therefore, if you know (or have estimated) building costs in one city today, you can easily convert those costs to expected building costs in another city.

In addition, by using the Historical Cost Index, you can easily convert historical building costs at a particular time to the approximate current building costs for some other time. The City Cost Indexes can then be used to calculate the costs for a particular city.

Quick Calculations

Location Adjustment Using the City Cost Indexes:

$$\frac{\text{Index for City A}}{\text{Index for City B}} \times \text{Cost in City B} = \text{Cost in City A}$$

Time Adjustment for the National Average Using the Historical Cost Index:

$$\frac{\text{Index for Year A}}{\text{Index for Year B}} \times \text{Cost in Year B} = \text{Cost in Year A}$$

Adjustment from the National Average:

$$\frac{\text{Index for City A}}{100} \times \text{National Average Cost} = \text{Cost in City A}$$

Since each of the other RSMeans publications contains many different items, any *one* item multiplied by the particular city index may give incorrect results. However, the larger the number of items compiled, the closer the results should be to actual costs for that particular city.

The City Cost Indexes for Canadian cities are calculated using Canadian material and equipment prices and labor rates, in Canadian dollars. Therefore, indexes for Canadian cities can be used to convert U.S. National Average prices to local costs in Canadian dollars.

How to use this section

1. Compare costs from city to city.

In using the RSMeans Indexes, remember that an index number is not a fixed number but a ratio: It's a percentage ratio of a building component's cost at any stated time to the National Average cost of that same component at the same time period. Put in the form of an equation:

$$\frac{\text{Specific City Cost}}{\text{National Average Cost}} \times 100 = \text{City Index Number}$$

Therefore, when making cost comparisons between cities, do not subtract one city's index number from the index number of another city and read the result as a percentage difference. Instead, divide one city's index number by that of the other city. The resulting number may then be used as a multiplier to calculate cost differences from city to city.

The formula used to find cost differences between cities for the purpose of comparison is as follows:

$$\frac{\text{City A Index}}{\text{City B Index}} \times \text{City B Cost (Known)} = \text{City A Cost (Unknown)}$$

In addition, you can use RSMeans CCI to calculate and compare costs division by division between cities using the same basic formula. (Just be sure that you're comparing similar divisions.)

2. Compare a specific city's construction costs with the National Average.

When you're studying construction location feasibility, it's advisable to compare a prospective project's cost index with an index of the National Average cost.

For example, divide the weighted average index of construction costs of a specific city by that of the 30 City Average, which = 100.

$$\frac{\text{City Index}}{100} = \% \text{ of National Average}$$

As a result, you get a ratio that indicates the relative cost of construction in that city in comparison with the National Average.

3. Convert U.S. National Average to actual costs in Canadian City.

$$\frac{\text{Index for Canadian City}}{100} \times \text{National Average Cost} = \text{Cost in Canadian City in \$ CAN}$$

4. Adjust construction cost data based on a National Average.

When you use a source of construction cost data which is based on a National Average (such as RSMeans cost data publications), it is necessary to adjust those costs to a specific location.

$$\frac{\text{City Index}}{100} \times \frac{\text{"Book" Cost Based on}}{\text{National Average Costs}} = \text{City Cost (Unknown)}$$

5. When applying the City Cost Indexes to demolition projects, use the appropriate division installation index. For example, for removal of existing doors and windows, use Division 8 (Openings) index.

What you might like to know about how we developed the Indexes

The information presented in the CCI is organized according to the Construction Specifications Institute (CSI) MasterFormat 2010.

To create a reliable index, RSMeans researched the building type most often constructed in the United States and Canada. Because it was concluded that no one type of building completely represented the building construction industry, nine different types of buildings were combined to create a composite model.

The exact material, labor, and equipment quantities are based on detailed analyses of these nine building types, then each quantity is weighted in proportion to expected usage. These various material items, labor hours, and equipment rental rates are thus combined to form a composite building representing as closely as possible the actual usage of materials, labor and equipment used in the North American Building Construction Industry.

The following structures were chosen to make up that composite model:

1. Factory, 1 story
2. Office, 2-4 story
3. Store, Retail
4. Town Hall, 2-3 story
5. High School, 2-3 story
6. Hospital, 4-8 story
7. Garage, Parking
8. Apartment, 1-3 story
9. Hotel/Motel, 2-3 story

For the purposes of ensuring the timeliness of the data, the components of the index for the composite model have been streamlined. They currently consist of:

- specific quantities of 66 commonly used construction materials;
- specific labor-hours for 21 building construction trades; and
- specific days of equipment rental for 6 types of construction equipment (normally used to install the 66 material items by the 21 trades.) Fuel costs and routine maintenance costs are included in the equipment cost.

A sophisticated computer program handles the updating of all costs each city on a quarterly basis. Material and equipment price quotations are gathered quarterly from 731 cities in the United States and Canada. These prices and the latest negotiated labor wage rates for 21 different building trades are used to compile the quarterly update of the City Cost Index.

The 30 major U.S. cities used to calculate the National Average are:

Atlanta, GA	Memphis, TN
Baltimore, MD	Milwaukee, WI
Boston, MA	Minneapolis, MN
Buffalo, NY	Nashville, TN
Chicago, IL	New Orleans, LA
Cincinnati, OH	New York, NY
Cleveland, OH	Philadelphia, PA
Columbus, OH	Phoenix, AZ
Dallas, TX	Pittsburgh, PA
Denver, CO	St. Louis, MO
Detroit, MI	San Antonio, TX
Houston, TX	San Diego, CA
Indianapolis, IN	San Francisco, CA
Kansas City, MO	Seattle, WA
Los Angeles, CA	Washington, DC

What the CCI does not indicate

The weighted average for each city is a total of the divisional components weighted to reflect typical usage, but it does not include the productivity variations between trades or cities.

In addition, the CCI does not take into consideration factors such as the following:

- managerial efficiency
- competitive conditions
- automation
- restrictive union practices
- unique local requirements
- regional variations due to specific building codes

Cost Indexes

DIVISION		UNITED STATES									ALABAMA								
		30 CITY			ANNISTON			BIRMINGHAM			BUTLER			DECATUR			DOTHAN		
		AVERAGE			362			350 - 352			369			356			363		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
34 SITE & INFRASTRUCTURE, DEMOLITION	100.0	100.0	100.0	87.6	93.4	91.6	85.6	94.0	91.4	103.5	87.5	92.4	80.6	92.0	88.5	100.8	87.0	91.6	
Concrete Forming & Accessories	100.0	100.0	100.0	91.9	49.9	55.4	92.3	72.4	75.0	88.6	45.2	50.8	96.0	48.1	54.3	96.8	44.6	51.4	
Concrete Reinforcing	100.0	100.0	100.0	93.3	83.3	88.3	93.3	83.7	88.5	98.6	48.8	73.5	93.3	78.1	85.7	98.6	48.2	73.2	
Cast-in-Place Concrete	100.0	100.0	100.0	92.5	51.8	76.5	98.7	66.6	86.0	90.2	57.3	77.2	91.9	64.9	81.3	90.2	48.2	73.7	
CONCRETE	100.0	100.0	100.0	95.3	58.4	77.3	94.3	73.5	84.2	96.1	51.9	74.6	91.1	61.2	76.5	95.5	48.4	72.6	
MASONRY	100.0	100.0	100.0	92.0	70.5	78.9	94.8	79.1	85.2	96.9	51.3	69.1	93.0	54.2	69.3	98.1	42.0	63.8	
METALS	100.0	100.0	100.0	93.6	91.3	92.9	94.5	93.1	94.0	92.6	78.9	88.1	95.8	87.9	93.2	92.7	77.7	87.7	
WOOD, PLASTICS & COMPOSITES	100.0	100.0	100.0	94.1	45.4	66.0	96.0	71.0	81.5	89.3	45.0	63.7	99.0	45.6	68.1	100.4	45.0	68.4	
THERMAL & MOISTURE PROTECTION	100.0	100.0	100.0	93.1	55.8	78.0	95.1	82.0	89.8	93.2	59.5	79.5	92.9	61.3	80.1	93.1	51.8	76.3	
OPENINGS	100.0	100.0	100.0	93.8	51.1	83.1	97.6	73.3	91.4	93.9	46.8	82.0	97.9	52.6	86.4	93.9	46.8	82.1	
Plaster & Gypsum Board	100.0	100.0	100.0	88.2	44.1	56.7	97.1	70.5	78.1	86.0	43.7	55.8	93.2	44.4	58.3	96.0	43.7	58.7	
Ceilings & Acoustic Treatment	100.0	100.0	100.0	89.3	44.1	59.4	94.9	70.5	78.8	89.3	43.7	59.2	93.8	44.4	61.2	89.3	43.7	59.2	
Flooring	100.0	100.0	100.0	101.8	42.1	84.3	104.5	63.1	92.4	107.6	58.6	93.2	104.5	53.0	89.4	114.6	28.8	89.4	
Wall Finishes & Painting/Coating	100.0	100.0	100.0	96.6	33.2	57.5	96.6	58.6	73.1	96.6	56.2	71.7	96.6	59.8	73.9	96.6	56.2	71.7	
FINISHES	100.0	100.0	100.0	95.4	45.5	67.6	98.5	68.8	81.9	99.4	48.4	70.9	97.1	49.4	70.5	102.3	42.4	68.9	
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	100.0	100.0	100.0	73.9	94.8	100.0	88.7	97.8	100.0	44.7	89.0	100.0	46.7	89.4	100.0	44.8	89.0	
FIRE SUPPRESSION, PLUMBING & HVAC	100.0	100.0	100.0	99.2	59.4	83.0	99.9	65.9	86.1	96.7	35.7	72.0	99.9	43.7	77.2	96.7	35.6	72.0	
ELECTRICAL, COMMUNICATIONS & UTIL.	100.0	100.0	100.0	96.6	60.9	78.2	103.0	62.5	82.1	98.5	42.7	69.7	98.2	65.6	81.4	97.3	61.0	78.6	
WEIGHTED AVERAGE	100.0	100.0	100.0	96.0	64.5	82.1	97.6	74.6	87.4	96.5	52.0	76.9	96.5	60.1	80.5	96.6	52.0	76.9	
DIVISION		ALABAMA									ALABAMA								
		EVERGREEN			GADSDEN			HUNTSVILLE			JASPER			MOBILE			MONTGOMERY		
		364			359			357 - 358			355			365 - 366			360 - 361		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	98.0	98.0	98.0	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	98.0	98.0	98.0	98.0	98.0	98.0	
34 SITE & INFRASTRUCTURE, DEMOLITION	104.0	87.8	92.8	86.3	92.9	90.9	80.4	93.1	89.1	85.7	92.7	90.6	95.1	88.5	90.5	93.6	88.4	90.0	
Concrete Forming & Accessories	85.4	46.9	51.9	88.7	43.9	49.7	96.0	64.3	68.4	93.6	36.4	43.9	96.1	56.9	62.0	94.0	45.9	52.2	
Concrete Reinforcing	98.7	48.8	73.5	98.9	82.5	90.6	93.3	78.6	85.9	93.3	82.4	87.8	96.3	81.7	89.0	96.3	82.3	89.3	
Cast-in-Place Concrete	90.2	59.9	78.3	92.0	51.0	75.8	89.6	63.3	79.2	101.9	45.9	79.8	94.5	69.3	84.6	96.5	48.6	77.6	
CONCRETE	96.3	53.6	75.5	95.1	55.3	75.7	89.9	67.9	79.2	98.6	50.3	75.0	92.9	67.3	80.4	93.7	55.4	75.1	
MASONRY	96.9	56.2	72.0	91.4	45.4	63.3	94.5	60.3	73.6	88.0	43.6	60.9	95.2	55.7	71.1	93.3	41.6	61.7	
METALS	92.7	78.9	88.1	93.7	90.5	92.6	95.8	89.5	93.7	93.6	89.8	92.4	94.6	91.6	93.6	94.5	90.1	93.0	
WOOD, PLASTICS & COMPOSITES	85.9	45.0	62.3	89.9	41.1	61.7	99.0	65.2	79.4	96.0	33.5	59.9	99.1	56.1	74.3	95.6	45.0	66.4	
THERMAL & MOISTURE PROTECTION	93.1	60.1	79.7	93.0	66.1	82.1	92.8	74.7	85.4	93.0	47.8	74.7	92.8	73.3	84.9	92.4	64.8	81.2	
OPENINGS	93.9	46.8	82.0	93.8	49.9	82.8	97.9	63.2	89.1	93.8	48.8	82.5	97.9	60.7	88.5	97.9	54.3	86.9	
Plaster & Gypsum Board	85.1	43.7	55.5	85.5	39.7	52.8	93.2	64.5	72.7	88.7	31.9	48.1	93.2	55.2	66.1	97.1	43.7	59.0	
Ceilings & Acoustic Treatment	89.3	43.7	59.2	89.3	39.7	56.6	95.8	64.5	75.2	89.3	31.9	51.4	95.8	55.2	69.0	94.9	43.7	61.1	
Flooring	105.0	58.6	91.4	100.0	47.1	84.5	104.5	56.6	90.4	102.6	42.1	84.9	113.6	58.6	97.5	112.0	31.0	88.2	
Wall Finishes & Painting/Coating	96.6	56.2	71.7	96.6	64.0	76.5	96.6	61.6	75.0	96.6	40.7	62.1	100.1	57.2	73.6	96.6	56.2	71.7	
FINISHES	98.6	49.6	71.2	94.4	44.9	66.8	97.6	62.2	77.8	95.4	36.5	62.5	102.6	56.1	76.7	101.8	42.8	68.9	
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	46.4	89.3	100.0	80.4	96.1	100.0	85.1	97.0	100.0	42.9	88.6	100.0	81.6	96.3	100.0	80.3	96.1	
FIRE SUPPRESSION, PLUMBING & HVAC	96.7	38.2	73.0	101.8	38.6	76.2	99.9	55.5	81.9	101.8	56.4	83.4	99.9	64.6	85.6	100.0	36.4	74.2	
ELECTRICAL, COMMUNICATIONS & UTIL.	95.9	42.7	68.5	98.3	62.5	79.9	99.4	65.6	82.0	97.7	62.5	79.6	99.4	60.7	79.5	98.5	64.7	81.0	
WEIGHTED AVERAGE	96.2	53.4	77.3	96.6	57.6	79.4	96.6	68.1	84.1	96.8	57.6	79.5	97.7	67.5	84.4	97.4	56.6	79.4	
DIVISION		ALABAMA									ALASKA								
		PHENIX CITY			SELMA			TUSCALOOSA			ANCHORAGE			FAIRBANKS			JUNEAU		
		368			367			354			995 - 996			997			998		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	98.0	98.0	98.0	98.0	98.0	98.0	100.7	100.7	100.7	114.5	114.5	114.5	114.5	114.5	114.5	114.5	114.5	114.5	
34 SITE & INFRASTRUCTURE, DEMOLITION	108.1	88.4	94.5	100.6	88.3	92.2	80.8	93.1	89.3	125.9	129.7	128.5	118.0	129.7	126.1	125.5	129.7	128.4	
Concrete Forming & Accessories	91.9	40.7	47.4	89.8	45.1	50.9	95.9	49.5	55.6	139.3	117.2	120.1	142.3	117.3	120.6	138.5	117.2	119.9	
Concrete Reinforcing	98.6	65.1	81.7	98.6	82.1	90.3	93.3	82.4	87.9	148.6	108.8	128.5	143.5	108.9	126.0	111.7	108.8	110.3	
Cast-in-Place Concrete	90.2	49.2	74.0	90.2	48.4	73.7	93.3	51.0	76.6	144.5	116.5	133.5	136.6	116.9	128.8	144.4	116.5	133.4	
CONCRETE	98.7	50.1	75.1	95.0	54.9	75.5	91.7	57.9	75.2	131.5	114.7	123.3	119.6	114.9	117.3	122.1	114.7	118.5	
MASONRY	96.9	43.4	64.2	100.2	40.8	64.0	93.3	48.5	66.0	193.3	121.7	149.6	195.8	121.7	150.6	178.8	121.7	144.0	
METALS	92.6	83.8	89.7	92.6	89.0	91.4	94.9	90.5	93.4	120.1	101.7	114.0	117.1	101.8	112.1	117.1	101.6	112.0	
WOOD, PLASTICS & COMPOSITES	93.8	37.6	61.4	90.9	45.0	64.4	99.0	47.2	69.0	116.7	116.0	116.3	121.5	116.0	118.4	116.7	116.0	116.3	
THERMAL & MOISTURE PROTECTION	93.5	64.7	81.8	93.0	54.7	77.4	92.9	68.2	82.9	191.0	116.3	160.6	179.7	117.6	154.4	181.2	116.3	154.8	
OPENINGS	93.8	46.1	81.8	93.8	54.3	83.9	97.9	60.4	88.4	119.9	112.9	118.1	116.4	113.0	115.5	115.7	112.9	115.0	
Plaster & Gypsum Board	89.6	36.1	51.4	87.3	43.7	56.2	93.2	46.0	59.5	143.4	116.3	124.1	150.2	116.3	126.0	130.9	116.3	120.5	
Ceilings & Acoustic Treatment	89.3	36.1	54.2	89.3	43.7	59.2	95.8	46.0	62.9	136.0	116.3	123.0	122.5	116.3	118.4	116.2	116.3	116.3	
Flooring	110.1	31.0	86.9	108.3	29.8	85.3	104.5	39.3	85.4	160.1	128.4	150.8	150.4	128.4	143.9	150.6	128.4	144.1	
Wall Finishes & Painting/Coating	96.6	56.2	71.7	96.6	56.2	71.7	96.6	48.4	66.9	150.9	116.9	129.9	150.4	125.8	135.2	150.9	116.9	129.9	
FINISHES	101.1	38.7	66.3	99.4	42.6	67.7	97.5	46.3	69.0	150.9	119.6	133.4	143.6	120.5	130.8	140.5	119.6	128.8	
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	79.9	96.0	100.0	44.7	89.0	100.0	82.3	96.5	100.0	108.7	101.7	100.0	108.7	101.7	100.0	108.7	101.7	
FIRE SUPPRESSION, PLUMBING & HVAC	96.7	36.8	72.4	96.7	35.9	72.1	99.9	36.2	74.1	100.3	104.5	102.0	100.3	108.2	103.5	100.3	104.0	101.8	
ELECTRICAL, COMMUNICATIONS & UTIL.	98.0	73.9	85.5	97.0	42.7	69.0	98.9	62.5	80.1	133.3	116.7	124.7	143.5	116.7	129.6	129.3	116.7	122.8	
WEIGHTED AVERAGE	97.1	55.9	78.9	96.3	51.9	76.7	96.6	58.6	79.9	124.5	114.0	119.9	122.4	115.0	119.1	120.3			

City Cost Indexes

DIVISION		ALASKA						ARIZONA														
		KETCHIKAN			CHAMBERS			FLAGSTAFF			GLOBE			KINGMAN			MESA/TEMPE					
		999			865			860			855			864			852					
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL			
015433	CONTRACTOR EQUIPMENT	114.5	114.5		94.0	94.0		94.0	94.0		95.9	95.9		94.0	94.0		94.0					
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	176.4	129.7	144.2	64.0	96.6	86.5	82.4	98.5	93.5	96.6	96.8	96.1	64.0	96.6	87.9	86.8	108.4				
0310	Concrete Forming & Accessories	134.3	117.2	119.4	96.5	45.5	52.2	101.3	68.1	72.4	99.2	45.4	52.4	94.8	67.3	70.9	101.8	47.2				
0320	Concrete Reinforcing	112.2	108.8	110.5	98.0	78.0	87.9	97.8	85.2	91.5	102.6	77.9	90.2	98.1	85.2	91.6	103.3	40.2				
0330	Cast-in-Place Concrete	276.4	116.5	213.4	89.3	54.1	75.4	89.4	75.5	83.9	86.2	54.2	73.6	89.0	71.9	82.3	86.9	71.9				
03	CONCRETE	203.0	114.7	159.9	94.8	55.0	75.4	112.9	73.8	93.9	105.5	55.0	80.9	94.4	72.3	83.6	91.5	72.3				
04	MASONRY	204.8	121.7	154.1	92.9	41.2	61.3	93.0	62.8	74.6	107.4	41.1	66.9	92.9	61.3	73.6	107.5	41.3				
05	METALS	117.3	101.6	112.1	94.0	68.6	85.6	94.5	76.8	88.7	90.6	68.8	83.4	94.7	76.6	88.7	90.9	76.8				
06	WOOD, PLASTICS & COMPOSITES	112.9	116.0	114.7	94.6	43.4	65.0	99.9	68.3	81.6	88.8	43.5	62.6	90.6	68.3	77.7	92.0	68.4				
07	THERMAL & MOISTURE PROTECTION	182.8	116.3	155.8	96.4	50.9	77.9	98.2	66.3	85.2	102.6	48.4	80.6	96.4	62.1	82.5	101.8	62.8				
08	OPENINGS	118.6	112.9	117.2	104.8	50.8	91.2	105.0	73.2	97.0	97.7	50.9	85.9	105.0	72.0	96.7	97.8	73.0				
0920	Plaster & Gypsum Board	137.9	116.3	122.5	91.3	41.7	55.9	94.8	67.3	75.2	97.8	41.7	57.7	85.2	67.3	72.4	100.6	47.3				
0950, 0980	Ceilings & Acoustic Treatment	117.4	116.3	116.7	112.4	41.7	65.7	113.3	67.3	82.9	98.9	41.7	61.1	113.3	67.3	82.9	96.9	67.3				
0960	Flooring	150.4	128.4	143.9	92.7	41.4	77.7	95.1	41.6	79.4	98.1	41.4	81.4	91.6	56.2	81.2	99.5	56.9				
0970, 0990	Wall Finishes & Painting/Coating	150.4	116.9	129.7	93.2	38.9	59.7	93.2	57.7	71.3	97.8	38.9	61.5	93.2	57.7	71.3	97.8	57.7				
09	FINISHES	146.4	119.6	131.4	97.4	42.8	67.0	100.7	61.4	78.8	98.1	42.9	67.3	96.5	63.5	78.1	97.7	62.7				
COVERS	DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	108.7	101.7	100.0	77.7	95.6	100.0	82.9	96.6	100.0	77.9	96.6	100.0	82.3	96.5	100.0	82.7				
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	98.6	104.0	100.8	96.4	74.0	87.3	100.2	83.0	93.2	94.3	73.7	86.0	96.4	82.0	90.6	100.2	76.9				
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	143.4	116.7	129.6	101.4	68.5	84.4	100.4	62.3	80.7	96.6	63.7	79.7	101.4	62.3	81.2	93.6	62.8				
MF2010	WEIGHTED AVERAGE	134.1	113.9	125.2	96.5	63.0	81.7	100.3	73.9	88.7	97.4	62.5	82.0	96.4	73.4	86.3	97.4	72.4				
DIVISION		ARIZONA									ARKANSAS											
		PHOENIX			PRESCOTT			SHOW LOW			TUCSON			BATESVILLE			CAMDEN					
		850, 853			863			859			856 - 857			725			717					
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL			
015433	CONTRACTOR EQUIPMENT	96.4	96.4		94.0	94.0		95.9	95.9		95.9	95.9		88.3	88.3		88.3					
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	87.3	100.9	96.7	70.3	96.6	88.4	98.8	98.8	98.8	82.3	100.7	95.0	71.0	84.4	80.2	71.7	83.9				
0310	Concrete Forming & Accessories	102.7	70.4	74.6	97.8	45.3	52.1	105.3	45.7	53.4	102.0	70.0	74.2	83.5	47.6	52.3	83.3	32.4				
0320	Concrete Reinforcing	101.5	85.4	93.4	97.8	78.2	87.9	103.3	78.1	90.6	85.5	85.2	83.5	93.4	64.5	79.8	96.7	64.3				
0330	Cast-in-Place Concrete	87.0	75.7	82.5	89.3	54.0	75.4	86.2	54.3	73.6	89.4	75.5	84.0	80.2	47.4	67.3	82.2	40.0				
03	CONCRETE	97.1	75.1	86.3	99.7	54.9	77.9	107.6	55.2	82.0	95.8	74.7	85.5	85.2	51.5	68.8	86.9	42.2				
04	MASONRY	94.3	65.9	77.0	93.0	46.4	64.5	107.4	42.7	67.9	92.4	62.8	74.3	105.5	43.1	67.4	113.6	33.2				
05	METALS	92.5	78.2	87.7	94.6	68.7	86.0	90.4	69.2	83.4	91.7	77.0	86.8	96.9	66.9	87.0	97.0	46.4				
06	WOOD, PLASTICS & COMPOSITES	92.9	71.2	80.3	95.8	43.4	65.5	96.2	43.5	65.8	92.3	71.2	80.1	86.9	48.3	64.6	86.7	31.9				
07	THERMAL & MOISTURE PROTECTION	101.5	67.0	87.4	96.9	50.2	77.9	102.8	50.8	81.7	102.9	62.7	86.6	96.2	46.4	76.0	96.0	33.7				
08	OPENINGS	98.9	74.8	92.9	105.0	50.8	91.3	96.7	50.9	85.2	94.0	74.8	89.2	95.1	46.9	83.0	91.3	41.3				
0920	Plaster & Gypsum Board	103.2	70.2	79.6	91.5	41.7	55.9	103.3	41.7	59.3	107.3	70.2	80.8	76.7	47.2	55.6	76.7	29.9				
0950, 0980	Ceilings & Acoustic Treatment	106.1	70.2	82.4	111.5	41.7	65.4	98.9	41.7	61.1	99.8	70.2	80.2	88.4	47.2	61.2	88.4	29.9				
0960	Flooring	99.8	54.2	86.4	93.6	41.4	78.3	103.3	47.2	85.4	90.5	41.6	76.1	102.7	61.9	90.7	102.6	41.5				
0970, 0990	Wall Finishes & Painting/Coating	97.8	64.0	76.9	93.2	38.9	59.7	97.8	38.9	61.5	98.4	57.7	73.3	96.2	43.4	63.6	96.2	49.9				
09	FINISHES	99.7	66.1	81.0	98.0	42.8	67.2	99.9	43.9	68.7	95.9	63.2	77.6	89.7	49.5	67.3	89.8	35.1				
COVERS	DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	83.5	96.7	100.0	77.7	95.6	100.0	77.9	95.6	100.0	83.4	96.7	100.0	42.7	88.6	100.0	38.4				
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	100.2	83.1	93.2	100.2	71.2	88.4	94.3	74.1	86.1	100.2	73.5	89.4	94.3	53.6	77.8	94.3	50.9				
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	100.7	70.9	85.3	100.1	62.2	80.5	93.9	63.6	78.3	95.6	59.7	77.2	98.4	63.4	80.3	94.9	60.4				
MF2010	WEIGHTED AVERAGE	97.9	76.6	88.5	98.2	62.1	82.2	97.5	62.9	82.2	96.1	72.1	85.5	94.2	56.1	77.4	94.1	50.1				
DIVISION		ARKANSAS									ARKANSAS											
		FAYETTEVILLE			FORT SMITH			HARRISON			HOT SPRINGS			JONESBORO			LITTLE ROCK					
		727			729			726			719			724			720 - 722					
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL			
015433	CONTRACTOR EQUIPMENT	88.3	88.3		88.3	88.3		88.3	88.3		88.3	88.3		106.3	106.3		88.3					
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	70.4	85.9	81.1	75.1	85.8	82.5	75.5	84.4	81.6	74.9	85.3	82.1	94.8	99.4	97.9	82.1	85.8				
0310	Concrete Forming & Accessories	79.5	40.9	45.9	96.7	58.2	63.2	87.6	47.6	52.8	81.0	37.7	43.4	86.9	51.1	55.7	89.3	62.6				
0320	Concrete Reinforcing	95.4	69.4	82.3	96.6	70.1	83.2	95.0	64.4	79.6	94.9	64.5	79.6	92.3	66.8	79.4	96.7	65.2				
0330	Cast-in-Place Concrete	80.2	51.7	69.0	91.7	66.6	81.8	89.0	45.4	71.8	84.1	40.5	66.9	87.4	57.5	75.6	92.1	66.6				
03	CONCRETE	85.0	50.9	68.4	93.1	63.8	78.8	92.5	50.7	72.1	90.4	44.7	68.2	88.5	57.6	74.1	92.9	64.9				
04	MASONRY	95.0	43.7	63.7	100.3	52.0	70.8	105.9	41.3	66.4	89.2	35.4	54.8	96.4	44.3	64.6	97.1	52.0				
05	METALS	96.9	69.0	87.7	99.3	70.7	89.8	98.1	66.6	87.7	96.9	66.9	87.0	93.8	80.0	89.2	95.4	68.1				
06	WOOD, PLASTICS & COMPOSITES	82.9	37.7	56.8	102.5	60.6	78.3	92.0	48.3	66.8	84.0	37.9	57.4	90.3	51.3	67.8	97.2	66.4				
07	THERMAL & MOISTURE PROTECTION	97.1	47.9	77.1	97.4	56.0	80.6	96.5	45.1	75.6	96.2	40.0	73.4	100.9	51.9	81.0	96.5	66.8				
08	OPENINGS	95.1	46.4	82.8	96.0	57.0	86.2	96.0	47.6	83.8	91.3	43.2	79.1	98.2	55.4	87.4	96.0	63.2				
0920	Plaster & Gypsum Board	74.5	36.3	47.2	82.8	59.9	66.5	81.4	47.2	57.0	75.4	36.5	47.6	90.7	50.0	61.6	88.4	45.8				
0950, 0980	Ceilings & Acoustic Treatment	88.4	36.3	54.0	92.0	59.9	70.8	92.0	47.2	62.4	88.4	36.5	54.1	92.5	50.0	64.4	93.5	45.8				
0960	Flooring	99.6	61.9	88.5	110.3	63.7	96.6	105.4	61.9	92.6	101.3	61.9	89.7	73.6	55.9	68.4	111.7	63.7				
0970, 0990	Wall Finishes & Painting/Coating	96.2	31.0	55.9	96.2	56.7	71.8	96.2	43.4	63.6	96.2	49.9	67.6	86.3	51.0	64.5	96.2	58.2				
09	FINISHES	88.6	42.4	62.8	93.7	59.3	74.5	92.2	49.5	68.4	89.6	42.5	63.3	86.8	51.4	67.8	96.4	52.9				
COVERS	DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	52.6	96.6	100.0	77.1	95.4	100.0	53.1	90.7	100.0	39.4	87.9	100.0	48.7	89.8	100.0	77.7				
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	94.3	52.2	77.2	100.3	51.6	80.5	94.3	51.3	76.9	94.3	50.4	76.5	100.5	54.5	81.9	100.2	68.3				
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	92.3	54.4	72.7	97.7	68.6	81.7	97.0	39.4	67.3	97.1	67.2	81.6	103.4	63.4	82.8	100.5	68.7				
MF2010	WEIGHTED AVERAGE	92.9	54.1	75.8	97.1	62.5	81.8	95.5	52.3	76.5	93.4	52.9	75.5	96.8	60.7	80.9	97.0					

Cost Indexes

DIVISION		ARKANSAS									CALIFORNIA								
		PINE BLUFF			RUSSELLVILLE			TEXARKANA			WEST MEMPHIS			ALHAMBRA			ANAHEIM		
		716			728			718			723			917- 918			928		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
		88.3	88.3		88.3	88.3		88.9	88.9		106.3	106.3		99.3	99.3		100.8	100.8	
34	SITE & INFRASTRUCTURE, DEMOLITION	76.8	85.8	83.0	72.2	84.3	80.5	89.7	86.3	87.4	101.5	99.4	100.0	97.9	109.3	105.8	96.8	108.4	104.8
	Concrete Forming & Accessories	80.7	62.5	64.9	84.1	56.5	60.1	86.5	42.6	48.3	91.7	51.3	56.5	121.6	119.9	120.1	107.0	121.9	119.9
	Concrete Reinforcing	96.6	65.2	80.8	96.1	64.3	80.1	96.2	64.5	80.2	92.3	66.8	79.4	109.7	118.2	114.0	95.9	118.1	107.1
	Cast-in-Place Concrete	84.1	66.6	77.2	84.1	47.3	69.6	91.7	45.3	73.4	91.6	57.5	78.2	89.2	118.3	100.7	92.9	120.8	103.9
	CONCRETE	91.2	64.8	78.3	88.4	55.4	72.3	89.6	48.5	69.6	96.9	57.8	77.8	100.0	118.0	108.8	99.7	119.8	109.5
	MASONRY	122.3	52.0	79.4	99.5	39.5	62.9	100.3	35.0	60.5	81.7	44.3	58.9	116.0	118.2	117.4	80.3	116.4	102.4
	METALS	97.8	69.0	88.3	96.9	66.5	86.9	90.9	67.0	83.0	92.8	80.2	88.6	83.5	101.6	89.5	100.7	101.8	101.1
	WOOD, PLASTICS & COMPOSITES	83.5	66.4	73.6	88.1	60.6	72.2	91.5	44.6	64.4	96.0	51.3	70.2	96.8	117.7	108.9	97.0	120.3	110.5
	THERMAL & MOISTURE PROTECTION	96.3	56.6	80.2	97.3	46.1	76.5	97.1	46.7	76.6	101.4	51.9	81.2	101.2	117.4	107.8	101.6	121.3	109.6
	OPENINGS	91.3	60.2	83.4	95.1	56.2	85.3	96.5	47.6	84.2	98.2	55.4	87.4	91.5	119.7	98.6	103.4	121.3	107.9
	Plaster & Gypsum Board	74.9	65.9	68.5	76.7	59.9	64.7	79.7	43.4	53.8	93.4	50.0	62.4	98.5	118.3	112.7	103.2	120.9	115.8
	Ceilings & Acoustic Treatment	88.4	65.9	73.5	88.4	59.9	69.6	93.8	43.4	60.5	90.5	50.0	63.7	92.8	118.3	109.7	107.5	120.9	116.3
	Flooring	101.0	63.7	90.0	102.3	61.9	90.4	103.4	53.4	88.7	76.2	55.9	70.2	97.2	105.0	99.4	108.9	111.4	109.6
	Wall Finishes & Painting/Coating	96.2	58.2	72.8	96.2	36.9	59.6	96.2	32.0	56.6	86.3	51.0	64.5	108.1	108.5	108.4	102.8	106.7	105.2
	FINISHES	89.5	62.9	74.7	89.9	56.0	71.0	92.6	42.7	64.8	88.2	51.4	67.7	97.3	115.9	107.7	104.4	118.3	112.2
	DVS. 10-14, 25, 28, 41, 43, 44, 46	100.0	77.7	95.6	100.0	44.0	88.9	100.0	35.2	87.1	100.0	48.7	89.8	100.0	109.9	102.0	100.0	110.5	102.1
	FIRE SUPPRESSION, PLUMBING & HVAC	100.3	54.0	81.5	94.3	53.4	77.8	100.3	57.3	82.9	94.5	66.3	83.1	94.1	111.1	101.0	100.1	110.2	104.9
	ELECTRICAL, COMMUNICATIONS & UTIL.	95.0	69.7	82.0	95.7	47.5	70.8	97.0	38.2	66.7	105.0	60.3	81.9	112.7	115.8	114.3	92.2	105.4	99.0
	WEIGHTED AVERAGE	96.7	63.8	82.2	94.1	55.4	77.0	95.9	51.3	76.2	95.8	62.8	81.2	97.1	113.5	104.3	98.9	112.8	105.1
DIVISION		CALIFORNIA												CALIFORNIA					
		BAKERSFIELD			BERKELEY			EUREKA			FRESNO			INGLEWOOD			LONG BEACH		
		932- 933			947			955			936- 938			903- 905			906- 908		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
	CONTRACTOR EQUIPMENT	98.7	98.7		98.5	98.5		98.4	98.4		98.7	98.7		96.5	96.5		96.5	96.5	
34	SITE & INFRASTRUCTURE, DEMOLITION	99.1	106.0	103.9	120.8	105.3	110.1	110.3	102.8	105.2	102.0	105.5	104.4	91.4	103.8	100.0	98.8	103.8	102.3
	Concrete Forming & Accessories	105.5	121.4	119.3	119.6	148.1	144.4	117.0	132.1	130.1	103.0	133.1	129.2	111.2	119.8	118.7	106.4	119.8	118.1
	Concrete Reinforcing	108.0	118.0	113.0	95.0	119.4	107.3	104.7	118.8	111.8	91.5	118.7	105.2	107.6	118.1	112.9	106.6	118.1	112.4
	Cast-in-Place Concrete	94.6	119.7	104.5	128.5	121.8	125.9	100.7	116.2	106.8	97.9	117.0	105.4	88.4	118.7	100.3	100.7	118.7	107.8
	CONCRETE	100.2	119.1	109.4	114.5	131.6	122.8	110.2	122.7	116.3	101.3	123.4	112.1	97.2	118.2	107.4	107.0	118.2	112.5
	MASONRY	99.4	115.9	109.4	130.4	132.7	131.8	103.8	127.3	118.1	102.6	122.1	114.5	76.5	118.3	102.0	85.4	118.3	105.5
	METALS	96.1	100.9	97.7	105.9	101.0	104.3	100.6	100.0	100.4	100.7	101.6	101.0	91.1	102.0	94.7	90.9	102.0	94.6
	WOOD, PLASTICS & COMPOSITES	92.1	120.4	108.4	118.6	153.8	138.9	110.4	137.2	125.9	103.5	137.2	123.0	99.9	117.6	110.1	93.6	117.6	107.5
	THERMAL & MOISTURE PROTECTION	100.5	111.9	105.1	114.4	136.6	123.0	105.7	115.6	109.7	95.3	115.0	103.3	99.4	118.7	107.2	96.6	119.0	107.5
	OPENINGS	100.9	116.8	104.9	101.4	141.2	111.4	102.2	114.6	105.3	102.7	126.0	108.6	93.5	119.6	100.1	93.5	119.6	100.1
	Plaster & Gypsum Board	94.5	120.9	113.3	110.4	154.9	142.2	108.4	138.2	129.7	97.4	138.2	126.6	103.7	118.3	114.2	99.2	118.3	112.9
	Ceilings & Acoustic Treatment	108.0	120.9	116.5	109.4	154.9	139.4	112.9	138.2	129.6	110.5	138.2	128.8	100.7	118.3	112.3	100.7	118.3	112.3
	Flooring	109.1	97.4	105.7	115.8	126.8	119.1	113.5	122.0	116.0	115.5	139.8	122.6	100.0	105.0	101.5	97.3	105.0	99.6
	Wall Finishes & Painting/Coating	104.9	93.8	98.0	103.9	141.5	127.1	104.2	48.7	70.0	120.2	111.0	114.5	99.7	108.5	105.2	99.7	108.5	105.2
	FINISHES	105.4	114.7	110.6	111.0	145.5	130.2	110.9	123.9	118.1	109.8	133.8	123.2	102.5	115.8	109.9	101.8	115.8	109.6
	DVS. 10-14, 25, 28, 41, 43, 44, 46	100.0	107.6	101.5	100.0	124.0	104.8	100.0	120.3	104.0	100.0	120.3	104.0	100.0	109.6	101.9	100.0	109.6	101.9
	FIRE SUPPRESSION, PLUMBING & HVAC	100.1	105.5	102.3	94.3	147.5	115.9	94.1	103.5	97.9	100.2	113.2	105.5	93.7	111.0	100.7	93.7	111.0	100.7
	ELECTRICAL, COMMUNICATIONS & UTIL.	101.6	101.2	101.4	106.6	138.5	123.1	99.8	116.8	108.6	91.7	100.4	96.2	103.4	115.9	109.8	103.1	115.9	109.7
	WEIGHTED AVERAGE	100.0	109.5	104.2	105.5	133.2	117.7	101.6	114.2	107.2	100.5	115.7	107.2	95.3	113.1	103.2	96.9	113.2	104.1
DIVISION		CALIFORNIA												CALIFORNIA					
		LOS ANGELES			MARYSVILLE			MODESTO			MOJAVE			OAKLAND			OXNARD		
		900- 902			959			953			935			946			930		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
	CONTRACTOR EQUIPMENT	100.1	100.1		98.4	98.4		98.4	98.4		98.7	98.7		98.5	98.5		97.6	97.6	
34	SITE & INFRASTRUCTURE, DEMOLITION	98.8	107.5	104.8	106.2	105.0	105.4	100.5	105.0	103.6	95.5	106.0	102.7	127.4	105.3	112.2	102.3	104.1	103.5
	Concrete Forming & Accessories	108.2	121.9	120.1	107.6	133.0	129.7	104.2	133.2	129.5	116.2	116.2	116.2	109.1	148.1	143.0	108.1	121.9	120.1
	Concrete Reinforcing	108.4	118.3	113.4	104.7	118.5	111.7	108.5	118.7	113.7	110.0	117.9	114.0	97.1	119.4	108.4	108.0	118.0	113.0
	Cast-in-Place Concrete	95.5	119.4	104.9	112.6	117.0	114.3	100.8	117.1	107.2	84.7	119.6	98.5	121.8	121.8	121.8	98.6	120.0	107.0
	CONCRETE	102.8	119.4	110.9	112.2	123.4	117.7	103.3	123.6	113.2	93.8	116.8	105.0	113.9	131.7	122.6	102.3	119.4	110.7
	MASONRY	90.2	100.1	108.5	104.8	119.1	113.5	103.8	123.0	115.5	100.7	115.1	109.5	138.3	132.7	134.9	104.1	114.5	110.5
	METALS	98.1	103.5	99.9	100.1	101.6	100.6	97.3	102.1	98.9	97.7	100.7	98.7	99.9	101.0	100.3	95.9	101.3	97.7
	WOOD, PLASTICS & COMPOSITES	99.6	120.2	111.5	98.2	137.2	120.7	94.4	137.2	119.1	102.8	113.6	109.0	106.6	153.8	133.9	98.1	120.4	111.0
	THERMAL & MOISTURE PROTECTION	98.8	121.0	107.8	105.2	118.0	110.4	104.8	117.7	110.0	101.2	110.4	105.0	112.1	135.6	121.6	104.7	116.9	109.7
	OPENINGS	100.6	121.3	105.8	101.4	125.9	107.6	100.2	126.6	106.8	96.7	113.1	100.9	101.4	141.2	111.4	99.8	121.4	105.2
	Plaster & Gypsum Board	103.7	120.9	115.9	100.4	138.2	127.4	103.6	138.2	128.3	109.9	113.9	112.7	103.8	154.9	140.3	103.2	120.9	115.8
	Ceilings & Acoustic Treatment	110.8	120.9	117.4	112.0	138.2	129.3	107.5	138.2	127.8	112.0	113.9	113.2	112.3	154.9	140.4	112.5	120.9	118.0
	Flooring	97.7	111.4	101.7	108.6	110.5	109.2	109.1	116.7	111.3	115.9	97.4	110.5	110.2	126.8	115.1	107.5	111.4	108.7
	Wall Finishes & Painting/Coating	98.8	108.5	104.8	104.2	115.2	111.0	104.2	118.4	112.9	104.2	93.8	97.7	103.9	141.5	127.1	104.2	99.7	101.4
	FINISHES	104.2	118.4	112.1	107.7	129.4	119.8	106.6	130.8	120.1	110.0	110.6	110.3	109.9	145.5	129.7	107.2	117.6	113.0
	DVS. 10-14, 25, 28, 41, 43, 44, 46	100.0	102.2	102.0	100.0	120.3	104.0	100.0	120.3	104.0	100.0	106.8	101.3	100.0	124.0	104.8	100.0	107.7	102.1
	FIRE SUPPRESSION, PLUMBING & HVAC	100.2	111.99																

City Cost Indexes

DIVISION		CALIFORNIA																	
		PALM SPRINGS			PALO ALTO			PASADENA			REDDING			RICHMOND			RIVERSIDE		
		922			943			910-912			960			948			925		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		99.6	99.6		98.5	98.5		99.3	99.3		98.4	98.4		98.5	98.5		99.4	99.4
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	88.3	106.5	100.8	116.5	105.3	108.8	94.7	109.3	104.8	106.2	105.0	105.4	126.8	105.3	112.0	95.1	104.3	104.3
0310	Concrete Forming & Accessories	103.5	119.9	117.7	107.3	140.1	135.9	111.8	119.9	118.9	107.4	133.0	129.7	122.0	147.7	144.4	107.1	123.8	123.8
0320	Concrete Reinforcing	110.2	118.0	114.1	95.0	119.2	107.2	110.6	118.2	114.4	104.7	118.5	111.7	95.0	119.2	107.2	107.0	118.6	118.6
0330	Cast-in-Place Concrete	88.5	120.7	101.2	108.7	121.6	113.8	84.7	118.3	97.9	111.6	117.0	113.7	125.0	121.6	123.7	96.3	125.0	125.0
03	CONCRETE	95.0	118.8	106.6	102.8	128.0	115.1	95.7	118.1	106.6	111.2	123.4	117.1	116.0	131.4	123.5	101.0	128.1	128.1
04	MASONRY	78.1	115.4	100.8	109.6	128.8	121.3	100.8	118.2	111.4	104.8	119.1	113.5	130.1	128.8	123.5	79.1	115.4	115.4
05	METALS	101.3	101.5	101.4	97.4	100.3	98.3	83.6	101.6	89.5	100.4	101.6	100.8	97.4	100.4	98.4	100.9	100.3	100.3
06	WOOD, PLASTICS & COMPOSITES	91.9	117.8	106.9	104.0	143.6	126.9	84.4	117.7	103.7	97.9	137.2	120.6	122.2	153.8	140.4	97.0	130.1	130.1
07	THERMAL & MOISTURE PROTECTION	101.3	119.3	108.6	111.6	128.7	118.6	100.9	117.9	107.8	105.2	117.5	110.2	112.2	133.9	121.0	101.8	130.1	130.1
08	OPENINGS	98.8	118.2	103.7	101.4	134.7	109.8	91.5	119.7	98.6	102.4	125.9	108.3	101.4	140.2	111.2	107.9	120.1	120.1
0920	Plaster & Gypsum Board	97.3	118.3	112.3	101.5	144.3	132.1	91.2	118.3	110.6	100.7	138.2	127.5	112.4	154.9	142.8	102.3	120.1	120.1
0950, 0980	Ceilings & Acoustic Treatment	104.8	118.3	113.7	110.3	144.3	132.8	92.8	118.3	109.7	118.0	138.2	131.3	110.3	154.9	139.7	109.8	120.1	120.1
0960	Flooring	111.1	105.0	109.3	109.3	120.8	112.7	91.7	105.0	95.6	108.6	110.5	109.1	117.7	120.8	118.6	112.9	111.4	111.4
0970, 0990	Wall Finishes & Painting/Coating	100.9	117.3	111.0	103.9	139.2	125.6	108.1	108.5	108.4	104.2	115.2	111.0	103.9	139.2	125.6	100.9	106.7	106.7
09	FINISHES	102.9	116.9	110.7	108.0	138.2	124.8	94.6	115.9	106.5	108.9	129.4	120.3	112.6	144.2	130.2	105.6	118.1	118.1
COVERS	DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	110.2	102.0	100.0	122.9	104.5	100.0	109.9	102.0	100.0	120.3	104.0	100.0	124.0	104.8	100.0	104.3	104.3
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	94.1	107.3	99.5	94.3	141.2	113.3	94.1	111.1	101.0	100.1	108.9	103.6	94.3	136.5	111.4	100.1	110.0	110.0
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	95.9	104.4	100.3	105.7	142.0	124.4	109.7	115.8	112.9	99.3	103.8	101.6	106.2	135.0	121.1	92.4	104.4	104.4
MF2010	WEIGHTED AVERAGE	96.4	110.9	102.8	101.3	129.9	113.9	95.2	113.6	103.3	102.8	114.4	107.9	104.7	129.7	115.7	98.9	112.4	112.4

DIVISION		CALIFORNIA																	
		SACRAMENTO			SALINAS			SAN BERNARDINO			SAN DIEGO			SAN FRANCISCO			SAN JOSE		
		942, 956 - 958			939			923 - 924			919 - 921			940 - 941			951		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		98.0	98.0		98.7	98.7		99.6	99.6		99.3	99.3		109.1	109.1		99.1	99.1
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	100.9	110.7	107.6	116.7	105.7	109.1	74.3	106.5	96.5	100.8	103.0	102.3	129.7	111.0	116.8	135.8	100.3	100.3
0310	Concrete Forming & Accessories	107.4	136.1	132.3	110.7	136.4	133.0	110.5	119.8	118.6	108.2	110.6	110.3	108.7	148.9	143.7	110.0	147.3	147.3
0320	Concrete Reinforcing	89.7	118.8	104.4	108.5	119.1	113.9	107.0	118.0	112.5	107.2	118.0	112.6	110.6	119.7	115.2	95.5	119.4	119.4
0330	Cast-in-Place Concrete	103.0	118.1	109.0	97.4	117.4	105.3	66.5	120.7	87.8	92.8	106.6	98.2	124.9	123.1	124.2	117.1	125.3	125.3
03	CONCRETE	103.2	124.7	113.7	111.5	125.2	118.1	75.6	118.8	96.7	100.5	110.0	105.1	117.5	133.1	125.1	108.8	131.7	131.7
04	MASONRY	111.6	123.0	118.5	100.4	128.2	117.4	85.8	115.4	103.8	92.0	113.7	105.2	138.8	135.9	137.0	132.7	132.8	132.8
05	METALS	95.6	96.0	95.7	100.3	103.2	101.2	100.9	101.4	101.0	98.7	102.7	100.0	106.5	110.8	107.9	95.7	100.7	100.7
06	WOOD, PLASTICS & COMPOSITES	99.3	140.7	123.2	102.3	140.4	124.3	100.6	117.8	110.6	97.9	107.2	103.3	106.6	153.9	134.0	106.5	153.9	153.9
07	THERMAL & MOISTURE PROTECTION	118.7	122.1	120.1	102.0	125.8	111.7	100.4	119.3	108.1	106.5	105.1	106.0	114.2	137.1	123.5	101.2	136.7	136.7
08	OPENINGS	114.1	128.5	117.7	101.2	133.9	109.4	98.9	118.2	103.7	99.5	111.9	102.6	105.9	141.3	114.8	93.1	141.6	141.6
0920	Plaster & Gypsum Board	97.8	141.5	129.0	104.5	141.5	130.9	104.1	118.3	114.3	98.8	107.2	104.8	106.8	154.9	141.1	97.5	154.9	154.9
0950, 0980	Ceilings & Acoustic Treatment	110.3	141.5	130.9	112.0	141.5	131.5	107.5	118.3	114.6	100.0	107.2	104.8	120.2	154.9	143.1	102.6	154.9	154.9
0960	Flooring	109.4	116.7	111.5	109.9	126.8	114.9	115.1	105.0	112.1	100.1	111.4	103.4	110.2	126.8	115.1	101.4	126.8	126.8
0970, 0990	Wall Finishes & Painting/Coating	101.1	118.4	111.8	105.3	141.5	127.7	100.9	104.9	103.4	104.5	109.4	107.5	103.9	151.4	133.2	104.7	141.6	141.6
09	FINISHES	106.3	132.9	121.1	100.0	137.0	125.0	104.1	115.6	110.5	100.3	110.2	105.9	112.1	146.7	131.4	104.7	145.3	145.3
COVERS	DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	121.3	104.2	100.0	120.7	104.1	100.0	107.1	101.4	100.0	108.4	101.7	100.0	124.5	104.9	100.0	123.4	123.4
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	100.1	116.8	106.9	94.1	120.0	104.6	94.1	107.3	99.5	100.1	110.4	104.3	100.2	169.6	128.3	100.1	146.7	146.7
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	101.1	113.3	107.4	91.7	125.8	109.3	95.9	103.6	99.9	96.0	101.0	98.6	105.9	155.0	131.2	102.1	152.2	152.2
MF2010	WEIGHTED AVERAGE	102.9	118.6	109.9	100.5	122.7	110.3	94.3	110.5	101.4	99.3	107.8	103.0	108.5	142.3	123.4	103.2	136.1	136.1

DIVISION		CALIFORNIA																	
		SAN LUIS OBISPO			SAN MATEO			SAN RAFAEL			SANTA ANA			SANTA BARBARA			SANTA CRUZ		
		934			944			949			926 - 927			931			990		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		98.7	98.7		98.5	98.5		98.5	98.5		99.6	99.6		98.7	98.7		99.1	99.1
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	108.1	106.0	106.7	124.1	105.3	111.1	114.7	110.7	112.0	86.7	106.5	100.3	102.3	106.0	104.9	135.1	100.0	100.0
0310	Concrete Forming & Accessories	117.8	119.6	119.4	112.9	147.8	143.2	115.2	147.5	143.3	110.8	119.8	118.6	109.1	121.8	120.1	110.1	136.4	136.4
0320	Concrete Reinforcing	110.0	117.9	114.0	95.0	119.4	107.3	95.5	119.3	107.5	110.7	110.0	114.4	108.0	118.0	113.0	118.3	118.3	118.3
0330	Cast-in-Place Concrete	104.7	119.7	110.6	121.0	121.7	121.3	140.9	120.6	132.9	85.0	120.7	99.0	98.2	119.8	106.7	116.3	119.3	119.3
03	CONCRETE	110.0	118.3	114.1	112.3	131.4	121.6	134.4	130.8	132.6	92.6	118.8	105.4	102.2	119.4	110.6	112.9	120.1	120.1
04	MASONRY	102.3	115.1	110.1	129.8	132.2	131.3	106.7	132.2	122.2	75.1	115.7	99.9	100.9	115.1	109.6	136.8	136.4	136.4
05	METALS	98.3	100.9	99.2	97.2	100.6	98.4	98.8	97.7	98.4	101.0	101.4	101.1	96.3	101.3	97.9	102.6	106.4	106.4
06	WOOD, PLASTICS & COMPOSITES	106.0	117.9	112.5	111.6	153.8	135.9	106.4	153.5	133.6	102.2	117.8	111.2	98.1	120.4	111.0	106.5	140.4	140.4
07	THERMAL & MOISTURE PROTECTION	105.1	115.9	107.7	112.0	138.4	121.3	116.6	131.7	122.7	101.6	119.3	108.8	101.4	116.2	107.4	101.1	128.6	128.6
08	OPENINGS	99.0	115.5	103.2	101.4	140.2	111.2	111.3	140.1	118.5	98.1	118.2	103.1	100.9	121.4	96.1	94.3	140.2	140.2
0920	Plaster & Gypsum Board	111.8	118.3	116.5	107.4	154.9	141.3	105.6	154.9	141.9	105.0	118.3	114.5	103.2	120.9	115.8	104.0	141.3	141.3
0950, 0980	Ceilings & Acoustic Treatment	112.0	118.3	116.2	110.3	154.9	139.7	118.4	154.9	142.5	107.5	118.3	114.6	112.5	120.9	118.0	109.3	141.2	141.2
0960	Flooring	116.9	99.4	111.1	112.3	120.8	114.8	123.2	120.8	122.5	115.7	105.0	112.5	109.1	97.4	105.7	108.9	116.8	116.8
0970, 0990	Wall Finishes & Painting/Coating	104.2	99.7	101.4	103.9	139.2	125.6	99.9	139.2	124.1	100.9	104.9	103.4	104.2	99.7	101.4	104.9	141.9	141.9
09	FINISHES	111.7	112.9	112.4	110.2	143.9	129.0	112.8	144										

Cost Indexes

DIVISION		CALIFORNIA												COLORADO																							
		SANTA ROSA			STOCKTON			SUSANVILLE			VALLEJO			VAN NUYS			ALAMOSA																				
		954			952			961			945			913 - 916			811																				
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL																		
1543		CONTRACTOR EQUIPMENT																		99.0	99.0	98.4	98.4	98.4	98.4	98.5	98.5	99.3	99.3	95.2	95.2						
1544	34	SITE & INFRASTRUCTURE, DEMOLITION																		100.9	105.1	103.8	100.2	105.0	103.5	113.2	105.0	107.5	100.3	110.6	107.4	112.4	109.3	110.3	131.0	91.6	103.8
1545		Concrete Forming & Accessories																		104.5	146.9	141.4	107.9	133.3	130.0	108.7	133.0	129.8	106.1	146.6	141.4	117.6	119.9	119.6	105.9	71.5	76.0
1546		Concrete Reinforcing																		105.7	119.6	112.7	108.5	118.8	113.7	104.7	118.5	111.7	96.7	119.5	108.2	110.6	118.2	114.4	105.8	80.7	93.2
1547		Cast-in-Place Concrete																		110.6	118.7	113.8	98.2	117.1	105.6	101.6	117.0	107.6	112.2	119.3	115.0	89.3	118.3	100.7	99.6	82.0	92.7
1548		CONCRETE																		111.7	130.4	120.8	102.2	123.6	112.6	112.1	123.4	117.6	108.8	130.0	119.1	108.8	118.0	113.3	113.2	77.2	95.6
1549		MASONRY																		102.8	133.5	121.5	103.8	123.0	115.5	103.2	119.1	112.9	80.2	133.5	112.7	116.0	118.2	117.4	126.0	75.6	95.2
1550		METALS																		101.3	104.9	102.5	97.5	102.2	99.0	99.5	101.6	100.2	98.8	98.0	98.5	82.6	101.6	88.9	96.0	82.7	91.6
1551		WOOD, PLASTICS & COMPOSITES																		93.2	153.3	127.9	99.7	137.2	121.4	99.8	137.2	121.4	96.0	153.5	129.2	92.1	117.7	106.9	93.2	71.8	80.8
1552		THERMAL & MOISTURE PROTECTION																		102.1	133.9	115.0	104.9	119.8	111.0	105.8	117.5	110.5	114.2	133.6	122.1	101.8	117.4	108.2	106.1	80.8	95.8
1553		OPENINGS																		99.8	140.9	110.2	100.2	126.6	106.8	102.3	125.9	108.3	113.7	141.0	120.6	91.3	119.7	98.5	95.6	78.0	91.2
1554		Plaster & Gypsum Board																		99.1	154.9	138.9	103.6	138.2	128.3	101.8	138.2	127.8	103.7	154.9	140.3	96.1	118.3	112.0	81.6	70.7	73.8
1555		Ceilings & Acoustic Treatment																		107.5	154.9	138.8	112.5	138.2	129.5	112.0	138.2	129.3	120.4	154.9	143.2	91.0	118.3	109.0	108.8	70.7	83.6
1556		Flooring																		111.7	120.4	114.3	109.1	116.7	111.3	109.1	110.5	109.5	118.0	126.8	120.6	94.9	105.0	97.8	111.5	57.4	95.6
1557		Wall Finishes & Painting/Coating																		100.9	141.5	126.0	104.2	118.4	112.9	104.2	115.2	111.0	100.8	141.5	125.9	108.1	108.5	108.4	107.9	24.9	56.7
1558		FINISHES																		105.0	143.5	126.5	107.7	130.8	120.6	108.9	129.4	120.3	109.3	144.7	129.0	97.2	115.9	107.6	106.9	63.5	82.7
1559		DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																		100.0	122.0	104.4	100.0	120.3	104.0	100.0	120.3	104.0	100.0	122.6	104.5	100.0	109.9	102.0	100.0	90.2	98.0
1560	11	FIRE SUPPRESSION, PLUMBING & HVAC																		94.1	168.2	124.1	100.1	113.2	105.0	94.1	108.9	100.1	100.2	130.4	112.4	94.1	111.1	101.0	94.1	74.6	86.2
1561	16	ELECTRICAL, COMMUNICATIONS & UTIL.																		96.2	120.9	108.9	98.9	112.2	105.8	99.7	103.8	101.8	98.1	129.6	114.4	109.7	115.8	112.9	95.7	75.1	85.1
1562	70	WEIGHTED AVERAGE																		100.3	135.0	115.6	100.7	117.2	108.0	101.5	114.4	107.2	102.2	128.2	113.7	98.1	113.5	104.9	101.5	76.7	90.6
DIVISION		COLORADO																																			
		BOULDER			COLORADO SPRINGS			DENVER			DURANGO			FORT COLLINS			FORT MORGAN																				
		803			808 - 809			800 - 802			813			805			807																				
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL																		
1563		CONTRACTOR EQUIPMENT																		96.2	96.2	94.7	94.7	99.1	99.1	95.2	95.2	96.2	96.2	96.2	96.2						
1564	34	SITE & INFRASTRUCTURE, DEMOLITION																		91.9	97.2	95.6	93.3	95.4	94.7	92.4	103.6	100.1	123.9	91.6	101.6	103.6	96.8	98.9	94.1	96.8	96.0
1565		Concrete Forming & Accessories																		104.0	80.0	83.1	95.1	80.4	82.3	100.4	80.7	83.2	111.3	71.8	77.0	101.4	79.1	82.0	104.3	79.5	82.7
1566		Concrete Reinforcing																		98.9	80.8	89.8	98.1	85.2	91.6	98.1	85.2	91.6	105.8	80.7	93.2	99.0	79.6	89.2	99.1	80.7	89.8
1567		Cast-in-Place Concrete																		103.2	82.4	95.0	106.0	85.8	98.0	100.3	85.5	94.5	114.5	82.1	101.8	116.5	81.2	102.6	101.3	81.3	93.4
1568		CONCRETE																		102.3	81.3	92.0	105.5	83.4	94.8	100.0	83.5	91.9	116.2	77.4	97.3	112.8	80.1	96.9	100.9	80.5	90.9
1569		MASONRY																		92.8	76.1	82.6	93.5	76.1	82.9	95.5	76.1	83.7	113.4	75.6	90.3	110.8	55.2	76.9	107.6	75.8	88.2
1570		METALS																		99.5	86.0	95.0	102.6	88.5	98.0	105.2	88.7	99.7	96.0	83.0	91.7	100.7	81.1	94.2	99.2	82.9	93.8
1571		WOOD, PLASTICS & COMPOSITES																		97.6	82.1	88.7	88.7	82.2	85.0	95.6	82.2	87.8	101.0	71.8	84.1	95.4	82.1	87.7	97.8	82.1	88.7
1572		THERMAL & MOISTURE PROTECTION																		105.0	78.8	94.4	105.9	83.1	96.6	104.2	77.0	93.2	106.0	80.8	95.7	105.4	67.9	90.2	105.0	82.4	95.8
1573		OPENINGS																		101.5	83.6	96.9	106.1	84.9	100.8	106.3	84.8	100.9	103.4	78.0	97.0	101.4	83.6	96.9	101.4	83.6	96.9
1574		Plaster & Gypsum Board																		108.6	81.8	89.4	89.1	81.8	83.9	104.6	81.8	88.3	93.4	70.7	77.2	102.7	81.8	87.8	109.1	81.8	89.6
1575		Ceilings & Acoustic Treatment																		99.5	81.8	87.8	106.8	81.8	90.3	105.9	81.8	90.0	108.8	70.7	83.6	99.5	81.8	87.8	99.5	81.8	87.8
1576		Flooring																		109.4	87.8	103.1	100.7	71.5	92.1	105.8	88.8	100.8	116.4	57.4	99.1	105.7	57.4	91.5	109.9	57.4	94.5
1577		Wall Finishes & Painting/Coating																		103.0	70.2	82.8	102.7	71.2	65.7	103.0	79.8	88.7	107.9	24.9	56.7	103.0	42.4	65.6	103.0	56.4	74.3
1578		FINISHES																		104.2	80.5	91.0	101.0	74.7	86.3	103.9	81.9	91.6	108.8	63.5	83.5	103.0	71.4	85.4	104.3	73.0	86.8
1579		DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																		100.0	90.4	98.1	100.0	90.8	98.2	100.0	90.4	98.1	100.0	90.1	98.0	100.0	90.4	98.1	100.0	90.4	98.1
1580	11	FIRE SUPPRESSION, PLUMBING & HVAC																		94.1	80.2	88.4	100.2	74.8	89.9	99.9	80.5	92.1	94.1	89.1	92.1	100.0	80.1	91.9	94.1	80.1	88.4
1581	16	ELECTRICAL, COMMUNICATIONS & UTIL.																		98.9	84.0	91.2	102.4	84.7	93.3	104.1	87.0	95.3	95.1	73.7	84.1	98.9	86.8	92.6	99.3	86.8	92.8
1582	70	WEIGHTED AVERAGE																		98.6	82.9	91.7	101.6	81.7	92.8	101.7	84.7	94.2	101.9	79.6	92.1	102.6	79.1	92.2	99.3	82.0	91.7
DIVISION		COLORADO																																			
		GLENWOOD SPRINGS			GOLDEN			GRAND JUNCTION			GREELEY			MONTROSE			PUEBLO																				
		816			804			815			806			814			810																				
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL																		
1583		CONTRACTOR EQUIPMENT																		97.9	97.9	96.2	96.2	97.9	97.9	96.2	96.2	96.5	96.5	95.2	95.2						
1584	34	SITE & INFRASTRUCTURE, DEMOLITION																		140.5	98.5	111.5	105.6	97.1	99.7	123.1	98.2	105.9	90.5	96.2	94.5	133.7	94.7	106.8	114.8	94.1	100.5
1585		Concrete Forming & Accessories																		103.3	79.6	82.7	97.4	79.5	81.8	110.1	79.2	83.2	99.6	83.0	85.2	102.9	79.4	82.4	107.8	80.7	84.2
1586		Concrete Reinforcing																		104.7	80.7	92.6	99.1	80.7	89.8	105.0	80.7	92.7	98.9	79.3	89.0	104.6	80.7	92.5	101.2	85.2	93.1
1587		Cast-in-Place Concrete																		99.5	81.5	92.4	101.3	81.4	93.5	110.2	80.8	98.6	97.4	60.3	82.8	99.6	81.4	92.4	98.8	86.6	94.0
1588		CONCRETE																		117.9	80.7	99.8	110.1	80.5	95.7	112.6	80.1	96.8	97.6	74.6	86.4	109.6	80.4	95.4	102.7	83.9	93.5
1589		MASONRY																		100.2	75.8	85.3	110.4	75.8	89.3	133.2	75.6	98.0	104.7	51.6	72.3	106.6	75.6	87.7	96.7	76.1	84.1
1590		METALS																		95.7	83.5	91.7	99.4	83.0	94.0	97.3	82.2	92.3	100.7	80.0	93.8	94.9	82.5	90.8	98.9	89.3	95.7
1591		WOOD, PLASTICS & COMPOSITES																		88.7	82.2	85.0	90.7	82.1	85.7	98.8	82.2	89.2	92.9	88.2	90.2	89.9	82.4	85.6	95.5	82.5	88.0
1592		THERMAL & MOISTURE PROTECTION																		105.9	81.9	96.2	105.9	76.4	93.9	104.9	70.8	91.0	104.8	63.3	87.9	106.1	81.9	96.3	104.4	82.6	95.6
1593		OPENINGS																		102.5	83.6	97.8	101.4	83.6	96.9	103.4	83.6	98.4	101.4	86.9	97.8	103.6	83.7	98.6	97.5	85.0	94.4
1594		Plaster & Gypsum Board																		113.3	81.8	90.8	100.0	81.8	87.0	125.1	81.8	94.2	100.9	88.1	91.8	80.7	81.8	81.5	86.6	81.8	83.1
1595		Ceilings & Acoustic Treatment																		107.9	81.8	90.6	99.5	81.8	87.8	107.9	81.8	90.6	99.5	88.1	92.0	108.8	81.8	90.9	117.8	81.8	94.0
1596		Flooring																		110.6	52.8	93.6	103.3	57.4	89.8	115.8	57.4	98.7	104.5	57.4	98.7	113.9	47.5	94.4	112.6	88.8	105.6
1597		Wall Finishes & Painting/Coating																		107.9	56.4	76.2	103.0	70.2	82.8	107.9	70.2	84.6	103.0	26.4	55.8	107.9	24.9	56.7	107.9	39.6	65.8

City Cost Indexes

DIVISION	COLORADO						CONNECTICUT											
	SALIDA			BRIDGEPORT			BRISTOL			HARTFORD			MERIDEN			NEW BRITAIN		
	812	TOTAL		066	TOTAL		060	TOTAL		061	TOTAL		064	TOTAL		060	TOTAL	
015433	CONTRACTOR EQUIPMENT	96.5	96.5		100.4	100.4		100.4	100.4		100.4	100.4		100.9	100.9		100.4	100.4
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	123.6	95.0	103.9	111.8	103.3	105.9	111.0	103.3	105.7	103.6	103.3	103.4	109.2	104.0	105.6	111.2	103.9
0310	Concrete Forming & Accessories	110.1	79.2	83.3	99.3	121.7	118.8	99.3	121.6	118.7	97.3	121.6	118.4	99.0	121.6	118.6	99.6	121.6
0320	Concrete Reinforcing	104.3	80.7	92.4	103.6	128.8	116.3	103.6	128.8	116.3	103.6	128.8	116.3	103.6	128.8	116.3	103.6	128.8
0330	Cast-in-Place Concrete	114.1	81.4	101.2	107.8	125.0	114.6	101.0	125.0	110.4	107.0	125.0	114.1	97.1	125.0	108.1	102.6	125.0
03	CONCRETE	111.5	80.4	96.3	110.6	124.0	117.1	107.1	123.9	115.3	110.0	123.9	116.8	105.2	123.9	114.3	106.0	123.9
04	MASONRY	134.8	75.6	98.7	104.1	129.8	119.8	96.7	129.8	116.9	97.2	129.8	117.1	96.3	129.8	116.7	98.0	129.8
05	METALS	94.6	82.4	90.6	99.1	125.2	107.7	99.1	125.0	107.7	103.9	125.0	110.9	96.5	125.0	105.9	95.7	125.0
06	WOOD, PLASTICS & COMPOSITES	96.5	82.4	88.3	98.6	120.3	111.1	98.6	120.3	111.1	97.1	120.3	110.5	98.6	120.3	111.1	98.6	120.3
07	THERMAL & MOISTURE PROTECTION	105.0	81.9	95.6	101.2	126.6	111.6	101.3	123.7	110.4	102.6	123.7	111.2	101.3	123.7	110.4	101.3	123.7
08	OPENINGS	95.7	83.7	92.7	102.4	130.1	109.4	102.4	130.1	109.4	103.1	130.1	109.9	105.1	130.1	111.4	102.4	130.1
0920	Plaster & Gypsum Board	81.2	81.8	81.6	97.8	120.3	113.8	97.8	120.3	113.8	95.9	120.3	113.3	99.6	120.3	114.4	97.8	120.3
0950, 0980	Ceilings & Acoustic Treatment	108.8	81.8	90.9	102.0	120.3	114.1	102.0	120.3	114.1	100.2	120.3	113.5	106.3	120.3	115.5	102.0	120.3
0960	Flooring	119.1	47.5	98.1	94.5	134.4	106.2	94.5	134.4	106.2	94.5	134.4	106.2	94.5	134.4	106.2	94.5	134.4
0970, 0990	Wall Finishes & Painting/Coating	107.9	24.9	56.7	90.1	117.5	107.0	90.1	117.5	107.0	90.1	117.5	107.0	90.1	117.5	107.0	90.1	117.5
09	FINISHES	107.9	67.7	85.5	101.7	123.2	113.7	101.8	123.2	113.7	99.9	123.2	112.9	102.9	123.2	114.2	101.8	123.2
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	91.0	98.2	100.0	108.6	101.7	100.0	108.6	101.7	100.0	108.6	101.7	100.0	108.6	101.7	100.0	108.6
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	94.1	74.6	86.2	100.0	114.7	106.0	100.0	114.7	106.0	100.1	114.7	106.0	94.1	114.7	102.4	100.0	114.7
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	95.1	75.1	84.8	102.2	109.9	106.2	102.2	109.9	106.2	102.2	110.5	105.1	102.1	109.6	106.0	102.3	109.6
MF2010	WEIGHTED AVERAGE	101.3	78.3	91.2	102.2	118.7	109.5	101.5	118.6	109.0	102.0	118.7	109.4	99.7	118.6	108.0	101.1	118.6

DIVISION	CONNECTICUT												WILLMANTIC			
	NEW HAVEN			NEW LONDON			NORWALK			STAMFORD			WATERBURY			062
	065	TOTAL		063	TOTAL		068	TOTAL		069	TOTAL		067	TOTAL		062
015433	CONTRACTOR EQUIPMENT	100.9	100.9		100.9	100.9		100.4	100.4		100.4	100.4		100.4	100.4	100.4
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	111.1	104.0	106.2	102.8	104.0	103.6	111.6	103.3	105.9	112.3	103.3	106.1	111.4	103.3	105.8
0310	Concrete Forming & Accessories	99.0	121.6	118.6	99.0	121.6	118.6	99.3	122.1	119.1	99.3	122.1	119.1	99.3	121.6	118.7
0320	Concrete Reinforcing	103.6	128.8	116.3	81.2	128.8	105.2	103.6	129.0	116.4	103.6	129.0	116.4	103.6	128.8	116.3
0330	Cast-in-Place Concrete	104.4	125.0	112.5	88.9	125.0	103.1	106.0	126.5	114.1	107.8	126.5	115.2	107.8	125.0	114.6
03	CONCRETE	123.2	123.9	123.5	94.7	123.9	108.9	109.7	124.7	117.0	110.6	124.7	117.4	110.6	123.9	117.0
04	MASONRY	96.9	129.8	117.0	95.3	129.8	116.3	96.4	131.3	117.7	97.2	131.3	118.0	97.2	129.8	117.1
05	METALS	95.9	125.0	105.5	95.6	125.0	105.3	99.1	125.7	107.9	99.1	125.7	107.9	99.1	125.0	107.7
06	WOOD, PLASTICS & COMPOSITES	96.6	120.3	111.1	98.6	120.3	111.1	98.6	120.3	111.1	98.6	120.3	111.1	98.6	120.3	111.1
07	THERMAL & MOISTURE PROTECTION	101.4	123.6	110.4	101.3	123.7	110.4	101.4	127.3	111.9	101.3	127.3	111.9	101.3	123.6	110.4
08	OPENINGS	102.4	130.1	109.4	105.6	130.1	111.8	102.4	130.1	109.4	102.4	130.1	109.4	102.4	130.1	109.4
0920	Plaster & Gypsum Board	97.8	120.3	113.8	97.8	120.3	113.8	97.8	120.3	113.8	97.8	120.3	113.8	97.8	120.3	113.8
0950, 0980	Ceilings & Acoustic Treatment	102.0	120.3	114.1	100.0	120.3	113.4	102.0	120.3	114.1	102.0	120.3	114.1	102.0	120.3	114.1
0960	Flooring	94.5	134.4	106.2	94.5	134.4	106.2	94.5	134.4	106.2	94.5	134.4	106.2	94.5	134.4	106.2
0970, 0990	Wall Finishes & Painting/Coating	90.1	117.5	107.0	90.1	117.5	107.0	90.1	117.5	107.0	90.1	117.5	107.0	90.1	117.5	107.0
09	FINISHES	101.8	123.2	113.7	100.6	123.2	113.2	101.8	123.2	113.7	99.9	123.2	113.7	101.6	123.2	113.6
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	108.6	101.7	100.0	108.6	101.7	100.0	108.6	101.7	100.0	108.6	101.7	100.0	108.6	101.7
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	100.0	114.7	106.0	94.1	114.7	102.4	100.0	114.8	106.0	100.0	114.8	106.0	100.0	114.7	106.0
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	102.1	109.6	106.0	96.7	109.6	104.3	102.2	162.3	133.2	102.2	162.3	133.2	101.6	109.9	105.9
MF2010	WEIGHTED AVERAGE	102.8	118.6	109.8	97.6	118.6	106.9	101.8	126.3	112.6	101.9	126.3	112.7	101.8	118.6	109.2

DIVISION	D.C.			DELAWARE			FLORIDA		
	WASHINGTON			DOVER			NEWARK		
	200 - 205	TOTAL		199	TOTAL		197	TOTAL	
015433	CONTRACTOR EQUIPMENT	103.2	103.2		116.9	116.9		116.9	116.9
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	109.6	92.6	97.9	98.2	111.9	107.6	98.6	111.9
0310	Concrete Forming & Accessories	97.4	81.1	83.2	98.3	102.7	102.1	100.4	102.7
0320	Concrete Reinforcing	98.5	89.7	94.1	96.0	102.1	99.1	96.8	102.1
0330	Cast-in-Place Concrete	129.8	90.0	114.1	95.5	101.9	98.0	85.8	101.9
03	CONCRETE	115.7	87.0	101.7	97.3	103.2	100.2	92.7	103.2
04	MASONRY	101.4	81.4	89.2	103.8	96.8	99.5	102.1	96.8
05	METALS	96.5	106.6	99.8	103.9	116.9	108.2	103.9	116.9
06	WOOD, PLASTICS & COMPOSITES	101.9	79.9	89.2	97.2	102.6	100.3	100.1	102.6
07	THERMAL & MOISTURE PROTECTION	100.2	84.9	94.0	97.9	112.4	103.8	97.9	112.4
08	OPENINGS	103.0	88.8	99.4	95.6	110.4	99.3	95.6	110.4
0920	Plaster & Gypsum Board	108.6	79.3	87.7	105.9	102.5	103.5	107.3	102.5
0950, 0980	Ceilings & Acoustic Treatment	105.8	79.3	88.3	104.2	102.5	103.1	104.2	102.5
0960	Flooring	115.0	97.2	108.8	97.1	107.6	100.1	97.3	107.6
0970, 0990	Wall Finishes & Painting/Coating	121.0	86.6	99.8	98.1	102.8	101.0	98.1	102.8
09	FINISHES	107.0	83.9	94.1	100.1	103.1	101.8	100.1	103.1
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	99.4	99.9	100.0	93.7	98.7	100.0	93.7
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	100.0	94.2	97.7	99.9	113.4	105.4	100.0	113.4
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	98.8	106.0	102.5	96.4	110.1	103.5	100.3	110.1
MF2010	WEIGHTED AVERAGE	102.4	92.8	98.2	99.5	107.9	103.2	99.4	107.9

Cost Indexes

DIVISION		FLORIDA																							
		FORT MYERS			GAINESVILLE			JACKSONVILLE			LAKELAND			MELBOURNE			MIAMI								
		339,341			326,344			320,322			338			329			330 - 332,340								
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL						
CONTRACTOR EQUIPMENT	98.0	98.0		98.0	98.0		98.0	98.0		98.0	98.0		98.0	98.0		90.9	90.9								
34 SITE & INFRASTRUCTURE, DEMOLITION	113.5	88.9	96.5	127.3	88.6	100.6	116.5	88.9	97.5	115.7	89.1	97.3	124.9	88.8	100.0	101.6	77.6	85.1							
Concrete Forming & Accessories	91.1	79.5	81.1	92.0	57.5	62.0	96.5	57.9	62.9	87.6	80.1	81.1	93.1	73.8	76.3	99.7	73.2	76.6							
Concrete Reinforcing	97.4	98.6	98.0	102.3	67.6	84.8	96.3	67.7	81.9	99.9	99.5	99.7	97.4	77.0	87.1	96.3	76.7	86.5							
Cast-in-Place Concrete	100.4	71.6	89.1	105.3	65.3	89.6	92.7	71.4	84.3	102.7	72.9	90.9	110.6	76.4	97.1	98.1	82.0	91.8							
CONCRETE	94.7	81.3	88.2	102.6	63.6	83.6	92.0	65.9	79.3	96.6	82.1	89.6	103.3	76.4	90.2	95.0	78.0	86.7							
MASONRY	87.5	65.4	74.0	109.0	64.6	81.9	93.6	64.7	76.0	105.5	80.1	90.0	92.7	73.7	81.1	94.4	76.0	83.2							
METALS	98.2	100.5	99.0	95.1	87.1	92.4	94.7	87.5	92.3	98.1	101.2	99.1	104.2	92.3	100.3	100.9	91.9	97.9							
WOOD, PLASTICS & COMPOSITES	92.8	82.3	86.7	94.0	55.0	71.5	100.0	55.0	74.0	88.6	82.3	85.0	95.6	73.6	82.9	101.6	71.4	84.2							
THERMAL & MOISTURE PROTECTION	94.9	84.5	90.7	95.4	64.7	82.9	95.3	65.3	83.1	94.9	89.3	92.6	95.5	80.3	89.3	103.6	79.5	93.8							
OPENINGS	98.8	79.0	93.8	98.2	55.6	87.4	100.2	58.9	89.8	98.7	79.7	93.9	99.3	73.9	92.9	97.9	69.5	90.7							
Plaster & Gypsum Board	87.3	82.2	83.7	88.2	54.1	63.8	93.2	54.1	65.3	85.1	82.2	83.0	88.2	73.2	77.5	90.6	71.0	76.6							
Ceilings & Acoustic Treatment	89.3	82.2	84.6	89.3	54.1	66.0	95.8	54.1	68.2	89.3	82.2	84.6	91.3	73.2	79.3	93.1	71.0	78.5							
Flooring	114.1	57.7	97.5	114.6	45.2	94.2	117.7	67.6	103.0	111.4	59.2	96.1	114.8	77.1	103.7	125.3	76.4	111.0							
Wall Finishes & Painting/Coating	111.2	64.1	82.1	111.2	64.1	82.1	111.2	65.3	82.9	111.2	64.1	82.1	111.2	65.9	102.4	105.7	74.0	86.2							
FINISHES	103.7	74.1	87.2	105.5	54.8	77.2	107.1	59.4	80.5	102.8	74.4	86.9	105.5	76.6	89.4	105.5	73.3	87.6							
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	78.6	95.7	100.0	76.6	95.3	100.0	74.6	95.0	100.0	78.6	95.7	100.0	79.8	96.0	100.0	85.4	97.1							
FIRE SUPPRESSION, PLUMBING & HVAC	96.7	66.2	84.4	98.8	68.6	86.6	99.9	68.6	87.3	96.7	86.7	92.7	99.9	79.2	91.5	99.9	71.3	88.3							
ELECTRICAL, COMMUNICATIONS & UTIL.	100.3	65.5	82.3	98.3	76.3	87.0	97.7	66.1	81.4	98.3	65.4	81.3	99.4	68.0	83.2	99.9	76.9	88.0							
WEIGHTED AVERAGE	98.1	75.8	88.3	100.4	69.7	86.9	98.7	69.4	85.7	99.0	82.0	91.5	101.5	78.2	91.2	99.6	76.7	89.6							
DIVISION		FLORIDA																							
		ORLANDO			PANAMA CITY			PENSACOLA			SARASOTA			ST. PETERSBURG			TALLAHASSEE								
		327 - 328,347			324			325			342			337			323								
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL						
CONTRACTOR EQUIPMENT	98.0	98.0		98.0	98.0		98.0	98.0		98.0	98.0		98.0	98.0		98.0	98.0								
34 SITE & INFRASTRUCTURE, DEMOLITION	116.7	88.7	97.4	131.7	87.8	101.4	130.9	88.3	101.5	117.9	88.8	97.8	117.3	88.4	97.4	112.6	88.0	95.6							
Concrete Forming & Accessories	96.3	76.4	79.0	95.8	46.6	53.0	93.8	55.0	60.0	96.7	79.6	81.9	94.8	54.1	59.4	98.6	46.8	53.5							
Concrete Reinforcing	96.3	76.3	86.2	100.6	77.1	88.7	103.2	77.6	90.3	96.3	99.4	97.9	99.9	86.2	93.0	96.3	67.5	81.8							
Cast-in-Place Concrete	115.0	73.8	98.7	97.4	59.3	82.4	120.3	68.9	100.0	104.9	72.7	92.2	103.8	67.2	89.4	100.2	58.8	83.9							
CONCRETE	104.5	76.5	90.8	100.2	58.4	79.8	111.1	65.6	88.9	98.2	81.8	90.2	98.1	66.2	82.6	95.9	56.6	76.8							
MASONRY	99.2	69.4	81.0	98.6	49.9	68.9	116.3	57.5	80.4	94.5	80.1	85.7	148.1	51.7	89.3	96.8	56.8	72.4							
METALS	101.6	91.5	98.3	95.9	89.3	93.7	97.0	90.8	95.0	98.8	100.7	99.4	99.0	93.7	97.3	89.8	86.8	88.8							
WOOD, PLASTICS & COMPOSITES	99.5	79.9	88.2	98.8	44.4	67.3	96.9	54.8	72.6	100.0	82.3	89.8	97.3	53.2	71.9	97.3	43.9	66.5							
THERMAL & MOISTURE PROTECTION	96.3	78.4	89.0	95.6	59.7	81.0	95.5	65.8	83.4	95.1	89.3	92.8	95.1	61.0	81.2	101.0	75.5	90.6							
OPENINGS	100.2	72.9	93.3	97.7	49.3	85.5	97.7	60.4	88.3	100.2	78.7	94.8	98.7	63.3	89.8	100.7	49.9	87.9							
Plaster & Gypsum Board	104.6	79.8	86.9	91.0	43.1	56.8	91.5	53.8	64.6	93.2	82.2	85.4	90.1	52.2	63.0	107.2	42.6	61.0							
Ceilings & Acoustic Treatment	98.5	79.8	86.1	91.3	43.1	59.4	91.3	53.8	66.5	93.8	82.2	86.1	91.3	52.2	65.5	98.5	42.6	61.6							
Flooring	117.9	77.1	105.9	117.2	45.0	96.0	112.0	65.9	98.5	117.7	60.6	100.9	116.3	57.8	99.2	117.7	64.9	102.2							
Wall Finishes & Painting/Coating	111.2	74.0	88.3	111.2	66.3	83.5	111.2	66.3	83.5	111.2	64.1	82.1	111.2	64.1	82.1	111.2	66.3	83.5							
FINISHES	108.8	76.8	90.9	107.5	47.2	73.9	105.6	57.5	78.8	106.7	74.6	88.8	105.4	54.8	77.2	108.7	50.8	76.4							
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	79.0	95.8	100.0	49.9	90.0	100.0	50.0	90.1	100.0	78.6	95.7	100.0	60.3	92.1	100.0	71.2	94.3							
FIRE SUPPRESSION, PLUMBING & HVAC	99.9	60.6	84.0	99.9	55.8	82.1	99.9	56.2	82.2	99.8	64.8	85.6	99.9	60.1	83.8	99.9	41.8	76.4							
ELECTRICAL, COMMUNICATIONS & UTIL.	100.1	62.8	80.8	96.7	60.1	77.8	100.7	57.2	78.3	98.0	65.4	81.2	98.3	65.4	81.3	103.8	60.1	81.3							
WEIGHTED AVERAGE	101.8	73.0	89.1	100.1	60.5	82.7	102.6	64.1	85.6	100.0	77.3	90.0	102.5	65.8	86.3	99.4	59.3	81.7							
DIVISION		FLORIDA																		GEORGIA					
		TAMPA			WEST PALM BEACH			ALBANY						ATHENS			ATLANTA			AUGUSTA					
		335 - 336,346			334,349			317,398						306			300 - 303,399			308 - 309					
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL			
CONTRACTOR EQUIPMENT	98.0	98.0		90.9	90.9		91.8	91.8		93.2	93.2		93.7	93.7		93.2	93.2								
34 SITE & INFRASTRUCTURE, DEMOLITION	117.6	89.0	97.9	96.4	77.9	83.6	99.9	79.2	85.6	103.6	92.3	95.8	99.4	94.1	95.7	95.8	92.0	93.2							
Concrete Forming & Accessories	97.6	80.2	82.4	98.6	72.4	75.8	96.0	45.8	52.3	93.6	43.5	50.0	96.9	75.3	78.1	94.5	67.0	70.6							
Concrete Reinforcing	96.3	99.5	97.9	99.1	76.4	87.6	96.0	83.5	89.7	102.7	82.7	92.6	102.0	84.9	93.4	103.0	75.5	89.1							
Cast-in-Place Concrete	101.4	72.9	90.2	91.5	78.0	86.2	98.0	47.8	78.2	111.6	53.1	88.5	111.6	71.7	95.9	105.4	50.0	83.6							
CONCRETE	96.5	82.2	89.5	90.7	76.2	83.7	94.5	55.1	75.3	103.1	55.0	79.7	101.1	75.9	88.8	96.6	63.0	80.2							
MASONRY	94.9	80.1	85.9	93.4	70.4	79.4	96.0	44.6	64.7	82.4	56.9	66.8	96.8	67.7	79.1	97.1	41.4	63.1							
METALS	98.1	101.2	99.1	95.2	92.6	94.3	95.4	86.9	92.6	91.2	75.4	86.0	92.1	79.5	87.9	90.9	72.9	84.9							
WOOD, PLASTICS & COMPOSITES	101.2	82.3	90.3	100.6	71.4	83.7	99.0	40.3	65.1	93.8	37.3	61.2	97.7	78.0	86.3	95.1	72.7	82.1							
THERMAL & MOISTURE PROTECTION	95.3	89.3	92.9	94.9	74.1	86.4	92.8	61.4	80.0	94.5	54.7	78.3	94.4	74.2	86.2	94.1	58.5	79.6							
OPENINGS	100.2	82.1	95.6	97.0	69.5	90.0	97.9	46.6	84.9	91.2	45.2	79.6	97.0	73.7	91.1	91.3	64.4	84.5							
Plaster & Gypsum Board	93.2	82.2	85.4	96.0	71.0	78.1	93.0	38.9	54.4	96.5	35.7	53.1	98.7	77.7	83.7	97.4	72.2	79.4							
Ceilings & Acoustic Treatment	95.8	82.2	86.8	89.3	71.0	77.2	94.9	38.9	57.9	95.8	35.7	56.1	95.8	77.7	83.8	96.8	72.2	80.6							
Flooring	117.7	59.2	100.5	120.1	69.6	105.3	117.7	37.5	94.2	89.2	56.4	79.5	90.6	68.3	84.1	89.6	41.1	75.4							
Wall Finishes & Painting/Coating	111.2	64.1	82.1	105.7	74.0	86.2	105.7	55.0	74.4	96.6	36.9	59.8	96.6	84.6	89.2	96.6	38.5	60.8							
FINISHES	107.2	74.4	88.9	103.2	71.5	85.6	103.7	43.2	70.0	94.6	43.5	66.1	94.8	75.0	83.8	94.2	59.9	75.1							
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	79.1	95.9	100.0	84.8	97.0	100.0	80.6	96.1	100.0	42.2	88.5	100.0	85.3	97.1	100.0	53.6	90.8							
FIRE SUPPRESSION, PLUMBING & HVAC	99.9	86.7	94.6	96.7	67.3	84.8	99.9	68.2	87.1	94.0	72.9	85.4	99.9	73.4	89.2	100.0	65.7	86.1							
ELECTRICAL, COMMUNICATIONS & UTIL.	98.0	65.4	81.2	99.4	74.3	86.5	93.5	60.1	76.3	102.3	73.9	87.7	101.7	75.5	88.2	103.0	65.6	83.7							
WEIGHTED AVERAGE	99.8	82.1	92.0	96.7	74.4	86.9	97.6	61.5	81.7	95.5	64.2	81.7	98.0	76.5	88.5	96.7	64.5	82.5							

City Cost Indexes

DIVISION		GEORGIA																			
		COLUMBUS			DALTON			GAINESVILLE			MACON			SAVANNAH			STATESBORO				
		318 - 319			307			305			310 - 312			313 - 314			304				
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL		
015433	CONTRACTOR EQUIPMENT		91.8	91.8			104.7	104.7			93.2	93.2		101.9	101.9		92.7	92.7			97.6
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	99.8	79.3	85.7	104.0	96.3	98.7	103.0	92.3	95.6	101.1	94.0	96.2	100.8	80.0	86.5	104.5	77.0			
0310	Concrete Forming & Accessories	95.9	57.1	62.2	87.3	49.0	54.0	96.6	45.3	52.0	95.2	54.3	59.6	96.0	50.7	56.6	82.3	42.5			
0320	Concrete Reinforcing	96.3	84.2	90.2	102.2	78.3	90.1	102.5	82.7	92.5	97.6	83.5	90.5	97.2	75.7	86.4	101.8	44.0			
0330	Cast-in-Place Concrete	97.6	56.3	81.3	108.4	47.0	84.2	117.3	52.9	91.9	96.3	50.2	78.1	107.4	49.2	84.5	111.4	61.3			
03	CONCRETE	94.4	63.2	79.2	102.0	55.4	79.3	105.3	55.8	81.2	93.9	59.8	77.3	99.4	56.3	78.4	102.6	51.3			
04	MASONRY	96.0	58.4	73.1	84.2	33.9	53.5	91.4	57.3	70.6	108.2	39.4	66.3	95.1	51.5	68.5	85.6	41.8			
05	METALS	94.9	88.6	92.8	91.9	85.0	89.6	90.4	75.1	85.3	91.1	87.7	90.0	91.4	84.2	89.1	95.4	72.8			
06	WOOD, PLASTICS & COMPOSITES	99.0	55.4	73.8	76.7	50.4	61.5	97.5	40.2	64.4	108.9	54.4	77.4	115.1	47.5	76.1	70.7	41.8			
07	THERMAL & MOISTURE PROTECTION	92.7	65.7	81.7	96.3	52.7	78.6	94.4	57.6	79.4	91.3	63.1	79.9	95.0	58.2	80.1	95.0	51.0			
08	OPENINGS	97.9	56.7	87.5	92.9	47.1	81.3	91.2	42.4	78.9	96.2	55.2	85.9	99.1	48.5	86.4	93.6	31.4			
0920	Plaster & Gypsum Board	93.0	54.5	65.4	80.3	49.2	58.1	98.7	38.7	55.9	101.8	53.4	67.2	92.2	46.4	59.5	82.2	40.8			
0950, 0980	Ceilings & Acoustic Treatment	94.9	54.5	68.2	107.8	49.2	69.1	95.8	38.7	58.1	89.7	53.4	65.7	98.5	46.4	64.1	104.0	40.8			
0960	Flooring	117.7	52.8	98.6	90.0	37.5	74.6	90.6	37.5	75.0	91.6	38.0	75.9	118.3	48.6	97.8	106.1	47.4			
0970, 0990	Wall Finishes & Painting/Coating	105.7	68.2	82.5	87.3	56.3	68.2	96.6	36.9	59.8	108.1	55.0	75.3	107.1	57.2	76.3	94.6	34.6			
09	FINISHES	103.6	56.4	77.3	103.6	47.0	72.0	95.0	40.9	64.8	91.3	50.2	68.4	104.7	50.1	74.2	106.4	41.8			
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	82.3	96.5	100.0	24.2	84.9	100.0	42.5	88.6	100.0	80.3	96.1	100.0	52.6	90.6	100.0	39.2			
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	99.9	49.9	79.7	94.1	59.2	79.9	94.0	72.8	85.4	99.9	66.3	86.3	99.9	61.6	84.4	94.5	56.7			
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	93.5	74.0	83.4	113.8	72.0	92.2	102.3	73.9	87.7	92.5	62.1	76.8	95.0	57.4	75.6	102.6	57.4			
MF2010	WEIGHTED AVERAGE	97.5	64.6	83.0	97.6	60.1	81.1	96.1	64.0	82.0	96.4	64.2	82.2	98.1	60.5	81.5	97.4	54.0			
DIVISION		HAWAII																			
		VALDOSTA			WAYCROSS			HILO			HONOLULU			STATES & POSS., GUAM			BOISE				
		316			315			967			968			969			836 - 837				
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL		
015433	CONTRACTOR EQUIPMENT		91.8	91.8		91.8	91.8		99.4	99.4		99.4	99.4		162.1	162.1		99.3			
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	110.3	79.2	88.9	106.8	78.0	86.9	124.4	107.4	112.6	127.4	107.4	113.6	166.7	104.8	124.8	77.8	98.3			
0310	Concrete Forming & Accessories	86.0	44.9	50.2	87.8	68.6	71.1	110.2	135.0	131.8	117.2	135.0	132.7	112.4	67.0	72.9	100.7	73.9			
0320	Concrete Reinforcing	98.3	71.4	84.8	98.3	77.2	87.7	109.0	122.1	115.6	108.0	122.1	115.1	192.4	32.0	111.5	99.8	74.9			
0330	Cast-in-Place Concrete	95.9	51.7	78.5	108.3	50.4	85.5	187.8	125.4	163.2	158.4	125.4	145.4	162.8	108.9	141.6	90.1	74.5			
03	CONCRETE	98.4	53.9	76.7	102.6	64.7	84.1	147.4	128.1	138.0	132.9	128.1	130.5	148.0	75.4	112.6	98.8	74.4			
04	MASONRY	102.1	51.1	71.0	103.0	41.5	65.5	121.3	127.0	124.8	114.1	127.0	122.0	173.3	46.0	95.6	122.1	62.5			
05	METALS	94.6	83.1	90.8	93.6	79.9	89.1	107.4	108.1	107.6	128.1	108.1	121.5	138.5	77.6	118.4	99.9	74.2			
06	WOOD, PLASTICS & COMPOSITES	87.0	39.3	59.5	88.8	77.0	82.0	101.4	137.6	122.4	111.7	137.6	126.7	112.0	70.9	88.3	87.9	76.3			
07	THERMAL & MOISTURE PROTECTION	92.9	64.4	81.3	92.7	53.1	76.6	104.7	124.7	112.8	114.5	124.7	118.6	120.8	69.9	100.1	96.0	88.6			
08	OPENINGS	93.2	42.7	80.4	93.2	60.7	85.0	99.7	131.3	107.7	105.0	131.3	111.6	104.5	57.0	92.5	96.3	70.8			
0920	Plaster & Gypsum Board	85.1	37.9	51.4	85.5	76.7	79.2	103.7	138.6	128.6	134.7	138.6	137.5	202.8	59.2	100.2	98.8	75.4			
0950, 0980	Ceilings & Acoustic Treatment	91.3	37.9	56.0	89.3	76.7	81.0	109.3	138.6	128.7	114.4	138.6	130.4	220.9	59.2	114.0	111.7	75.4			
0960	Flooring	110.4	48.7	92.3	111.8	31.3	88.2	133.3	133.6	133.4	157.0	133.6	150.1	156.7	48.6	125.0	96.5	66.8			
0970, 0990	Wall Finishes & Painting/Coating	105.7	55.0	74.4	105.7	42.0	66.4	98.7	144.2	126.8	103.1	144.2	128.5	104.2	37.9	63.3	98.8	41.6			
09	FINISHES	100.9	45.0	69.7	100.4	60.1	77.9	115.8	136.8	127.5	128.5	136.8	133.1	190.9	61.9	118.9	99.3	70.1			
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	51.7	90.4	100.0	43.0	88.7	100.0	115.6	103.1	100.0	115.6	103.1	100.0	79.7	96.0	100.0	62.2			
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	99.9	68.1	87.0	96.1	58.1	80.7	100.1	109.7	104.0	100.1	109.7	104.0	102.1	40.0	76.9	100.0	67.6			
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	91.5	59.8	75.2	95.8	60.5	77.6	107.0	127.2	117.4	105.9	127.2	116.9	154.1	43.8	97.2	96.4	73.0			
MF2010	WEIGHTED AVERAGE	97.6	60.8	81.4	97.3	61.4	81.5	110.3	121.2	115.1	113.3	121.2	116.8	131.1	60.8	100.1	99.3	72.4			
DIVISION		IDAHO																			
		COEUR D'ALENE			IDAHO FALLS			LEWISTON			POCATELLO			TWIN FALLS			BLOOMINGTON				
		838			834			835			832			833			617				
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL		
015433	CONTRACTOR EQUIPMENT		93.8	93.8		99.3	99.3		93.8	93.8		99.3	99.3		99.3	99.3		99.3			
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	76.2	93.9	88.4	76.3	97.4	90.8	82.2	94.4	90.6	79.6	98.2	92.5	86.4	96.6	93.4	97.8	96.8			
0310	Concrete Forming & Accessories	117.9	57.8	65.6	95.4	41.4	48.4	122.5	59.1	67.4	100.9	73.6	77.2	101.6	29.6	39.0	86.0	122.1			
0320	Concrete Reinforcing	107.4	93.5	100.4	101.8	77.7	89.6	107.4	93.6	100.5	100.2	74.9	87.5	102.1	77.9	89.9	98.6	107.6			
0330	Cast-in-Place Concrete	97.4	86.9	93.3	85.8	52.0	72.5	101.3	87.8	96.0	92.7	74.3	85.4	95.1	39.8	73.3	97.9	114.2			
03	CONCRETE	105.9	75.0	90.9	91.4	52.8	72.6	109.5	76.0	93.1	98.3	74.2	86.6	105.5	43.4	75.2	96.3	115.6			
04	MASONRY	123.7	82.4	98.5	117.2	34.6	66.8	124.1	83.3	99.2	119.8	64.4	86.0	122.3	32.6	67.6	113.8	119.0			
05	METALS	94.2	84.0	90.8	107.5	73.7	96.4	93.6	85.0	90.8	107.6	74.7	96.7	107.6	73.1	96.2	96.8	111.3			
06	WOOD, PLASTICS & COMPOSITES	93.4	50.5	68.6	82.6	39.8	57.9	98.0	50.5	70.6	88.0	76.2	81.2	88.7	28.3	53.8	85.6	118.8			
07	THERMAL & MOISTURE PROTECTION	147.8	73.7	117.7	95.6	44.6	74.9	148.0	73.7	117.8	96.1	61.3	81.9	96.9	38.7	73.2	97.9	111.9			
08	OPENINGS	115.3	56.0	100.4	100.5	46.8	87.0	115.3	58.7	101.0	97.1	65.5	89.1	100.6	38.4	84.9	89.4	107.0			
0920	Plaster & Gypsum Board	154.5	49.0	79.1	81.0	37.8	50.1	155.4	49.0	79.4	83.8	75.4	77.8	84.5	25.9	42.6	97.2	120.3			
0950, 0980	Ceilings & Acoustic Treatment	147.1	49.0	82.3	109.7	37.8	62.2	147.1	49.0	82.3	117.8	75.4	89.8	112.4	25.9	55.3	94.9	120.3			
0960	Flooring	135.3	48.0	109.7	96.2	45.1	81.2	138.5	89.5	124.1	99.7	66.5	90.0	100.9	45.1	84.6	97.4	112.2			
0970, 0990	Wall Finishes & Painting/Coating	116.6	61.9	82.8	98.8	34.2	59.0	116.6	61.9	82.8	98.7	43.3	64.5	98.8	25.5	53.6	96.0	124.0			
09	FINISHES	167.7	54.8	104.7	97.5	40.6	65.8	168.9	63.3	110.0	101.2	70.3	84.0	101.2	30.9	62.0	87.5	119.9			
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	52.4	90.5	100.0	39.5	88.0	100.0	65.0	93.0	100.0	62.2	92.5	100.0	35.5	87.2	100.0	65.5			

Cost Indexes

DIVISION		ILLINOIS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		CARBONDALE			CENTRALIA			CHAMPAIGN			CHICAGO			DECATUR			EAST ST. LOUIS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		629			628			618 - 619			606 - 608			625			620 - 622																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		CONTRACTOR EQUIPMENT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

City Cost Indexes

DIVISION	INDIANA																				
	ANDERSON			BLOOMINGTON			COLUMBUS			EVANSVILLE			FORT WAYNE			GARY					
	460			474			472			476 - 477			467 - 468			463 - 464					
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL			
015433	CONTRACTOR EQUIPMENT																				
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																				
0310	Concrete Forming & Accessories																				
0320	Concrete Reinforcing																				
0330	Cast-in-Place Concrete																				
03	CONCRETE																				
04	MASONRY																				
05	METALS																				
06	WOOD, PLASTICS & COMPOSITES																				
07	THERMAL & MOISTURE PROTECTION																				
08	OPENINGS																				
0920	Plaster & Gypsum Board																				
0950, 0980	Ceilings & Acoustic Treatment																				
0960	Flooring																				
0970, 0990	Wall Finishes & Painting/Coating																				
09	FINISHES																				
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																				
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																				
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																				
MF2010	WEIGHTED AVERAGE																				

DIVISION	INDIANA												IOWA					
	INDIANAPOLIS			KOKOMO			LAFAYETTE			LAWRENCEBURG			MUNCIE			NEW ALBANY		
	461 - 462			469			479			470			473			471		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT																	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																	
0310	Concrete Forming & Accessories																	
0320	Concrete Reinforcing																	
0330	Cast-in-Place Concrete																	
03	CONCRETE																	
04	MASONRY																	
05	METALS																	
06	WOOD, PLASTICS & COMPOSITES																	
07	THERMAL & MOISTURE PROTECTION																	
08	OPENINGS																	
0920	Plaster & Gypsum Board																	
0950, 0980	Ceilings & Acoustic Treatment																	
0960	Flooring																	
0970, 0990	Wall Finishes & Painting/Coating																	
09	FINISHES																	
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																	
MF2010	WEIGHTED AVERAGE																	

DIVISION	INDIANA												IOWA					
	SOUTH BEND			TERRE HAUTE			WASHINGTON			BURLINGTON			CARROLL			CEDAR RAPIDS		
	465 - 466			478			475			526			514			522 - 524		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT																	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																	
0310	Concrete Forming & Accessories																	
0320	Concrete Reinforcing																	
0330	Cast-in-Place Concrete																	
03	CONCRETE																	
04	MASONRY																	
05	METALS																	
06	WOOD, PLASTICS & COMPOSITES																	
07	THERMAL & MOISTURE PROTECTION																	
08	OPENINGS																	
0920	Plaster & Gypsum Board																	
0950, 0980	Ceilings & Acoustic Treatment																	
0960	Flooring																	
0970, 0990	Wall Finishes & Painting/Coating																	
09	FINISHES																	
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																	
MF2010	WEIGHTED AVERAGE																	

Cost Indexes

DIVISION		KENTUCKY											
		LEXINGTON			LOUISVILLE			OWENSBORO			PADUCAH		
		403 - 405			400 - 402			423			420		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
433	CONTRACTOR EQUIPMENT	102.2	102.2		96.0	96.0		116.9	116.9		116.9	116.9	
41.3	4 SITE & INFRASTRUCTURE, DEMOLITION	79.5	101.7	94.8	69.8	98.7	89.7	84.6	125.2	112.6	78.1	124.8	110.3
	Concrete Forming & Accessories	98.1	76.1	79.0	93.5	79.1	80.9	91.5	82.6	83.8	89.6	79.3	80.6
	Concrete Reinforcing	98.1	92.0	95.0	98.1	92.5	95.3	89.1	89.7	89.4	89.6	86.1	87.8
	Cas-in-Place Concrete	92.5	86.7	90.3	94.5	75.9	87.2	88.3	98.0	92.1	80.7	87.5	83.4
	CONCRETE	95.2	83.1	89.3	95.9	80.7	88.5	101.3	89.4	95.5	94.0	83.6	89.0
	MASONRY	88.7	70.1	77.4	89.9	79.4	83.5	88.8	83.7	85.7	91.8	91.6	91.7
	METALS	94.1	89.2	92.5	100.9	88.6	96.9	85.0	89.3	86.4	82.0	87.6	83.8
	WOOD, PLASTICS & COMPOSITES	103.7	73.1	86.0	101.2	78.7	88.2	94.4	80.6	86.4	92.1	77.7	83.8
	THERMAL & MOISTURE PROTECTION	97.9	86.3	93.2	92.0	78.2	86.4	97.6	88.8	94.0	97.3	81.8	91.0
	OPENINGS	98.8	77.0	93.3	98.8	82.7	94.8	95.7	83.8	92.7	94.8	77.4	90.4
	Plaster & Gypsum Board	95.9	71.6	78.5	89.0	78.4	81.4	87.9	79.4	81.8	86.5	76.4	79.3
	Ceilings & Acoustic Treatment	93.8	71.6	79.1	91.1	78.4	82.7	82.0	79.4	80.3	82.0	76.4	78.3
	Flooring	99.9	73.6	92.2	98.3	90.1	95.9	97.7	90.1	95.4	96.3	62.2	86.3
	Wall Finishes & Painting/Coating	96.0	84.1	88.7	96.0	78.3	85.1	96.0	97.0	96.6	96.0	81.0	86.7
	FINISHES	97.1	75.7	85.2	94.7	80.9	87.0	92.9	85.2	88.6	91.9	76.0	83.1
	DWS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	92.6	98.5	100.0	90.3	98.1	100.0	98.7	99.7	100.0	65.5	93.1
	FIRE SUPPRESSION, PLUMBING & HVAC	99.9	76.7	90.5	100.0	82.3	92.8	99.9	77.2	90.7	94.4	82.5	89.6
	ELECTRICAL, COMMUNICATIONS & UTIL.	95.3	83.7	89.3	102.7	80.8	91.4	94.3	83.9	88.9	96.6	80.5	88.3
	WEIGHTED AVERAGE	96.5	81.8	90.0	97.8	83.5	91.5	95.2	87.9	92.0	92.6	85.7	89.6
		LOUISIANA											
DIVISION		ALEXANDRIA			BATON ROUGE			HAMMOND			LAFAYETTE		
		713 - 714			707 - 708			704			705		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
433	CONTRACTOR EQUIPMENT	88.9	88.9		88.7	88.7		89.4	89.4		89.4	89.4	
41.3	4 SITE & INFRASTRUCTURE, DEMOLITION	96.1	85.7	88.9	104.0	85.2	91.1	105.3	86.5	92.3	106.0	86.4	92.5
	Concrete Forming & Accessories	82.5	36.4	42.4	93.8	62.0	66.1	79.3	48.7	52.7	95.1	53.7	59.1
	Concrete Reinforcing	98.0	57.5	77.6	99.0	59.3	79.0	97.6	61.1	79.2	99.0	59.3	79.0
	Cas-in-Place Concrete	95.8	39.4	73.6	94.8	57.7	80.2	97.6	45.1	76.9	97.1	45.7	76.9
	CONCRETE	95.1	42.8	69.6	95.1	60.5	78.2	95.4	50.7	73.6	96.3	52.8	75.1
	MASONRY	118.1	49.3	76.2	106.1	51.1	72.5	105.6	52.8	73.4	105.6	50.3	71.8
	METALS	89.5	71.8	83.7	101.3	70.2	91.1	97.0	70.9	88.4	96.1	70.4	87.6
	WOOD, PLASTICS & COMPOSITES	86.7	35.1	56.9	100.8	67.8	81.8	86.7	49.9	65.5	107.0	57.0	78.1
	THERMAL & MOISTURE PROTECTION	97.5	50.9	78.6	95.5	57.9	80.2	97.2	58.8	81.6	97.7	56.4	80.9
	OPENINGS	98.2	41.5	83.9	101.1	59.6	90.7	96.8	54.3	86.1	101.1	53.8	89.2
	Plaster & Gypsum Board	76.2	33.6	45.8	95.1	67.2	75.2	89.4	48.7	60.3	98.8	56.0	68.3
	Ceilings & Acoustic Treatment	91.1	33.6	53.1	102.2	67.2	79.1	99.3	48.7	65.9	97.5	56.0	70.1
	Flooring	101.3	66.9	91.2	102.1	66.9	91.8	93.4	66.9	85.6	102.3	66.9	91.9
	Wall Finishes & Painting/Coating	96.2	33.6	57.6	99.9	38.5	62.0	99.9	50.9	69.7	99.9	38.5	62.0
	FINISHES	91.6	40.7	63.2	100.4	61.1	78.5	96.5	52.3	71.8	99.8	54.5	74.5
	DWS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	51.0	90.2	100.0	79.6	95.9	100.0	49.0	89.8	100.0	78.1	95.6
	FIRE SUPPRESSION, PLUMBING & HVAC	100.3	51.2	80.4	100.1	59.1	83.5	94.2	45.9	74.6	100.2	59.4	83.6
	ELECTRICAL, COMMUNICATIONS & UTIL.	93.9	56.5	74.6	110.9	61.3	85.3	102.0	56.6	78.6	103.3	67.0	84.5
	WEIGHTED AVERAGE	97.1	53.5	77.9	101.2	63.0	84.4	97.5	56.1	79.3	99.9	61.5	83.0
		MAINE											
DIVISION		NEW ORLEANS			SHREVEPORT			THIBODAUX			AUGUSTA		
		700 - 701			710 - 711			703			043		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
433	CONTRACTOR EQUIPMENT	89.6	89.6		88.9	88.9		89.4	89.4		100.4	100.4	
41.3	4 SITE & INFRASTRUCTURE, DEMOLITION	109.6	88.0	94.7	98.6	84.9	89.1	107.9	86.4	93.1	87.9	100.2	96.4
	Concrete Forming & Accessories	98.5	68.9	72.7	96.1	38.8	46.2	91.7	61.6	65.5	98.1	100.3	100.0
	Concrete Reinforcing	99.0	61.8	80.3	96.6	57.7	77.0	97.6	61.0	79.1	84.6	101.0	92.9
	Cas-in-Place Concrete	101.2	69.9	88.9	95.3	44.9	75.5	104.9	48.0	82.5	95.3	61.9	82.2
	CONCRETE	98.6	68.4	83.9	94.9	45.7	70.9	100.8	57.4	79.6	105.7	86.6	96.4
	MASONRY	105.9	62.0	79.1	103.4	47.4	69.2	133.9	48.5	81.8	95.4	60.0	73.8
	METALS	109.1	74.3	97.6	86.3	69.6	80.7	97.0	70.6	88.3	86.7	80.8	84.5
	WOOD, PLASTICS & COMPOSITES	101.7	70.5	83.7	101.8	38.5	65.2	94.6	67.0	78.7	97.2	112.0	105.8
	THERMAL & MOISTURE PROTECTION	97.4	70.4	86.5	96.6	49.1	77.3	97.5	54.5	80.0	100.9	66.1	86.8
	OPENINGS	101.9	68.4	93.5	96.0	43.5	82.8	102.1	63.6	92.4	99.3	90.9	97.2
	Plaster & Gypsum Board	97.0	70.0	77.7	82.8	37.1	50.1	92.6	66.4	73.9	95.2	111.7	107.0
	Ceilings & Acoustic Treatment	97.5	70.0	79.3	92.0	37.1	55.7	99.3	66.4	77.6	94.8	111.7	106.0
	Flooring	102.7	66.9	92.2	109.5	64.2	96.2	99.6	46.2	83.9	94.5	57.9	83.7
	Wall Finishes & Painting/Coating	101.3	67.6	80.5	96.2	33.6	57.6	101.3	50.9	70.2	90.1	36.4	57.0
	FINISHES	100.3	68.6	82.6	95.1	42.1	65.6	99.0	58.3	76.3	97.4	87.6	91.9
	DWS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	83.6	96.7	100.0	64.9	93.0	100.0	80.1	96.0	100.0	93.7	98.7
	FIRE SUPPRESSION, PLUMBING & HVAC	100.1	65.8	86.2	100.2	55.1	81.9	94.2	59.6	80.2	99.9	65.4	85.9
	ELECTRICAL, COMMUNICATIONS & UTIL.	103.4	71.7	87.0	100.0	66.6	82.8	100.4	69.3	84.4	98.5	80.1	89.0
	WEIGHTED AVERAGE	102.3	70.5	88.3	96.7	56.3	78.9	100.2	63.4	84.0	97.6	79.8	89.8

City Cost Indexes

DIVISION	MAINE																	
	HOULTON			KITTEY			LEWISTON			MACHIAS			PORTLAND			ROCKLAND		
	047			039			042			046			040 - 041			048		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	90.8	100.0	97.2	84.7	100.2	95.4	87.5	97.9	94.7	90.1	100.0	97.0	85.0	97.9	93.9	86.0	100.1
0310	Concrete Forming & Accessories	96.7	99.4	99.0	90.7	100.7	99.4	98.3	91.0	91.9	94.3	99.5	96.8	97.2	91.0	91.8	95.2	96.7
0320	Concrete Reinforcing	84.3	101.0	92.7	82.9	101.0	92.0	103.6	101.1	102.3	84.3	101.0	92.7	103.6	101.1	102.3	84.3	101.1
0330	Cash-in-Place Concrete	83.5	60.1	74.3	83.5	62.8	75.4	85.2	104.4	92.8	83.5	60.2	74.4	105.7	104.4	105.2	85.3	61.3
03	CONCRETE	100.0	85.5	93.0	94.6	87.0	90.9	99.2	96.8	98.0	99.5	85.6	92.7	109.4	96.8	103.2	96.7	86.1
04	MASONRY	93.4	58.0	71.8	106.2	59.5	77.7	94.0	59.7	73.1	93.4	58.3	72.0	94.3	59.7	73.2	88.0	59.7
05	METALS	84.9	84.9	84.9	84.7	84.8	84.7	89.3	80.8	86.5	85.0	84.9	84.9	90.6	80.8	87.4	84.8	84.9
06	WOOD, PLASTICS & COMPOSITES	96.0	112.0	105.3	88.3	112.0	102.0	97.9	98.8	98.4	93.1	112.0	104.0	97.1	98.8	98.1	93.9	112.0
07	THERMAL & MOISTURE PROTECTION	101.6	63.6	86.1	101.1	66.3	86.9	101.3	65.7	86.8	101.5	63.6	86.1	104.6	65.7	88.8	101.3	65.7
08	OPENINGS	99.3	89.0	96.7	99.2	90.2	96.9	102.4	83.5	97.7	99.3	89.0	96.7	102.4	83.5	97.7	99.2	89.0
0920	Plaster & Gypsum Board	95.2	111.7	107.0	90.2	111.7	105.6	98.7	98.1	98.3	93.3	111.7	106.5	99.5	98.1	98.5	93.3	111.7
0950, 0980	Ceilings & Acoustic Treatment	92.7	111.7	105.3	92.7	111.7	105.3	102.0	98.1	99.4	92.7	111.7	105.3	99.3	98.1	98.5	92.7	111.7
0960	Flooring	93.5	54.2	82.0	90.6	60.4	81.7	95.1	64.4	86.1	92.6	54.2	81.3	94.5	64.4	85.6	92.9	54.2
0970, 0990	Wall Finishes & Painting/Coating	90.1	37.8	57.8	90.1	36.4	57.0	90.1	37.8	57.8	90.1	37.8	57.8	90.1	37.8	57.8	90.1	37.8
09	FINISHES	97.2	86.6	91.3	95.2	88.3	91.3	99.6	81.6	89.6	96.6	86.6	91.0	98.3	81.6	89.0	96.3	81.6
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	92.9	98.6	100.0	95.2	99.1	100.0	106.1	101.2	100.0	93.0	98.6	100.0	106.1	101.2	100.0	93.0
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	94.1	64.3	82.0	94.1	66.0	82.7	100.0	61.4	84.4	94.1	64.4	82.0	99.9	61.4	84.3	94.1	64.3
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	102.3	80.1	90.9	98.0	80.1	88.8	102.3	80.1	90.9	102.3	80.1	90.9	103.9	80.1	91.6	102.2	80.1
MF2010	WEIGHTED AVERAGE	95.7	78.9	88.3	94.8	80.1	88.3	98.1	78.9	89.7	95.5	79.0	88.2	99.5	78.9	90.4	94.7	78.9

DIVISION	MARYLAND																	
	WATERVILLE			ANNAPOLIS			BALTIMORE			COLLEGE PARK			CUMBERLAND			EASTON		
	049			214			210 - 212			207 - 208			215			216		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT	100.4	100.4	100.4	98.6	98.6	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	91.0	100.2	97.3	99.7	90.5	93.4	100.2	94.4	96.2	106.9	92.8	97.2	91.2	90.2	90.5	98.2	87.6
0310	Concrete Forming & Accessories	89.7	100.3	98.9	94.1	71.0	74.0	96.9	75.3	78.1	85.5	71.8	73.6	88.5	77.8	79.2	86.7	72.4
0320	Concrete Reinforcing	84.3	101.0	92.7	99.8	82.5	91.1	99.8	82.5	91.1	98.5	80.9	89.6	88.2	74.7	81.4	87.4	80.7
0330	Cash-in-Place Concrete	83.5	61.9	75.0	140.3	79.5	116.4	124.9	80.3	107.3	131.0	80.5	111.1	111.5	84.1	100.7	123.8	50.6
03	CONCRETE	100.8	86.6	93.8	120.9	77.2	99.6	113.4	79.4	96.8	115.7	77.8	97.2	101.2	80.3	91.0	110.1	67.4
04	MASONRY	103.1	60.0	76.8	101.1	75.8	85.7	102.2	75.8	86.1	115.1	70.5	87.9	100.2	78.5	86.9	114.3	45.4
05	METALS	84.9	85.0	84.9	94.9	94.7	94.9	96.1	95.3	95.8	83.9	96.9	88.2	92.5	91.3	92.1	92.8	88.8
06	WOOD, PLASTICS & COMPOSITES	87.3	112.0	101.6	90.0	70.8	78.9	92.8	76.5	83.4	87.6	71.1	78.1	83.3	76.3	79.2	81.3	79.5
07	THERMAL & MOISTURE PROTECTION	101.6	66.1	87.1	97.1	79.7	90.0	97.4	80.5	90.6	100.5	77.8	91.3	96.8	77.3	88.9	96.9	61.6
08	OPENINGS	99.3	90.9	97.2	93.9	78.5	90.0	96.1	81.6	92.4	97.2	75.0	91.6	95.1	77.5	90.7	93.1	77.4
0920	Plaster & Gypsum Board	90.2	111.7	105.6	98.3	70.3	78.3	99.9	76.0	82.9	99.7	70.3	78.7	94.5	75.9	81.2	94.0	75.2
0950, 0980	Ceilings & Acoustic Treatment	92.7	111.7	105.3	98.9	70.3	80.0	99.8	76.0	84.1	95.8	70.3	78.9	99.8	75.9	84.0	99.8	75.2
0960	Flooring	90.2	57.9	80.7	93.8	80.9	90.0	93.8	80.9	90.0	107.1	80.9	99.4	89.8	82.2	87.6	89.1	54.1
0970, 0990	Wall Finishes & Painting/Coating	90.1	36.4	57.0	96.8	83.5	88.6	96.8	83.5	88.6	121.0	78.7	94.9	96.8	77.3	84.8	96.8	78.7
09	FINISHES	95.8	87.6	91.2	96.0	73.2	83.3	96.6	76.6	85.4	101.4	73.5	85.8	94.1	78.3	85.3	94.3	71.3
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	93.7	98.7	100.0	86.1	97.2	100.0	87.1	97.4	100.0	82.2	96.5	100.0	89.8	98.0	100.0	81.1
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	94.1	65.4	82.4	99.9	83.7	93.3	99.9	83.8	93.4	94.3	86.1	91.0	93.9	72.0	85.0	93.9	68.1
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	102.3	80.1	90.9	96.2	93.2	94.7	99.4	93.8	96.5	98.3	98.9	98.6	97.1	82.0	89.3	96.6	66.1
MF2010	WEIGHTED AVERAGE	96.1	79.8	88.9	100.2	83.2	92.7	100.2	84.7	93.3	98.5	84.2	92.2	95.8	80.2	89.0	97.5	80.3

DIVISION	MARYLAND																		MASSACHUSETTS	
	ELKTON			HAGERSTOWN			SALISBURY			SILVER SPRING			WALDORF			BOSTON			020 - 022, 024	021
	219			217			218			209			206			020 - 022, 024	021			
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL		
015433	CONTRACTOR EQUIPMENT	98.6	98.6	98.6	98.6	98.6	98.6	98.6	98.6	98.6	98.6	98.6	98.6	98.6	98.6	98.6	98.6	98.6		
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	85.3	88.3	87.4	89.2	91.1	90.5	98.2	87.7	90.9	94.3	86.0	88.6	101.6	86.0	90.9	95.2	101.6		
0310	Concrete Forming & Accessories	92.1	85.8	86.6	87.8	78.1	79.3	99.2	54.9	60.7	93.9	70.1	73.2	106.6	70.2	74.1	102.8	142.2		
0320	Concrete Reinforcing	87.4	104.7	96.1	88.2	74.7	81.4	87.4	67.5	77.4	97.4	70.6	86.6	98.0	76.0	86.9	102.5	148.8		
0330	Cash-in-Place Concrete	100.2	78.9	91.8	106.2	84.2	97.5	123.8	49.2	94.5	134.1	79.4	112.5	150.3	79.4	122.4	107.8	149.9		
03	CONCRETE	92.9	87.6	90.3	97.1	80.5	89.0	110.9	56.8	84.5	114.3	75.6	95.5	126.1	75.7	101.5	113.4	145.1		
04	MASONRY	100.1	62.3	77.0	106.0	78.5	89.2	114.1	50.0	75.0	114.2	68.7	86.4	97.9	68.7	80.1	112.0	142.9		
05	METALS	92.8	101.2	95.6	92.7	91.5	92.3	92.8	83.9	89.9	87.9	93.3	89.7	87.9	93.4	89.7	101.2	129.1		
06	WOOD, PLASTICS & COMPOSITES	97.5	92.3	90.3	82.4	76.4	78.9	96.6	58.5	74.6	93.8	70.4	80.3	101.0	70.4	83.3	101.1	145.4		
07	THERMAL & MOISTURE PROTECTION	96.5	75.1	87.8	96.5	76.1	88.2	97.1	66.8	84.8	103.1	81.4	94.3	103.6	81.4	94.6	101.6	120.1		
08	OPENINGS	93.1	84.4	90.9	93.1	76.3	88.9	93.4	64.7	86.2	90.3	74.6	86.4	91.1	74.6	87.0	98.5	143.3		
0920	Plaster & Gypsum Board	96.7	92.4	93.7	94.0	76.0	81.2	102.7	57.5	70.4	105.4									

Cost Indexes

DIVISION		MASSACHUSETTS																	
		BROCKTON			BUZZARDS BAY			FALL RIVER			FITCHBURG			FRAMINGHAM			GREENFIELD		
		023			025			027			014			017			013		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
44	CONTRACTOR EQUIPMENT		102.2	102.2		102.2	102.2		103.1	103.1		100.4	100.4		101.6	101.6		100.4	100.4
44	SITE & INFRASTRUCTURE, DEMOLITION	92.5	104.0	100.4	82.7	103.9	97.3	91.6	104.0	100.2	84.5	103.9	97.9	81.0	103.6	96.6	88.4	102.4	98.1
44	Concrete Forming & Accessories	102.4	127.9	124.6	100.1	127.2	123.7	102.4	127.5	124.2	94.8	127.1	122.9	101.1	127.7	124.3	93.3	108.3	106.3
44	Concrete Reinforcing	103.6	149.4	126.7	83.0	121.5	102.4	103.6	121.5	112.6	83.0	142.0	112.7	83.0	149.0	116.3	86.5	125.7	106.2
44	Cast-In-Place Concrete	102.6	152.3	122.2	85.3	152.0	111.6	99.3	152.6	120.3	89.4	145.9	111.6	89.4	139.7	109.2	91.9	124.2	104.6
44	CONCRETE	110.5	139.5	124.7	93.3	133.9	113.1	108.9	134.2	121.2	91.7	135.4	113.0	94.6	135.0	114.3	95.7	116.5	105.8
44	MASONRY	107.9	158.8	139.0	99.3	158.8	135.6	108.4	158.8	139.1	95.5	151.9	129.9	101.7	152.0	132.4	99.8	125.9	115.7
44	METALS	98.0	126.9	107.6	93.0	115.2	100.3	98.0	115.6	103.8	92.9	120.7	102.1	93.0	126.1	103.9	95.1	109.4	99.8
44	WOOD, PLASTICS & COMPOSITES	100.0	124.7	114.3	97.2	124.7	113.1	100.0	125.0	114.4	93.7	124.5	111.5	99.7	124.5	114.0	92.0	106.0	100.1
44	THERMAL & MOISTURE PROTECTION	101.6	145.9	119.6	101.0	141.2	117.3	101.6	140.4	117.4	101.0	137.8	116.0	101.1	142.8	118.1	101.1	118.2	108.0
44	OPENINGS	96.6	133.8	105.9	92.1	120.5	99.3	96.6	120.6	102.6	101.1	131.7	108.8	92.6	133.6	102.9	101.2	111.9	103.9
44	Plaster & Gypsum Board	95.7	124.8	116.5	91.3	124.8	115.2	95.7	124.8	116.5	92.4	124.6	115.4	95.6	124.8	116.5	93.7	105.5	102.1
44	Ceilings & Acoustic Treatment	103.0	124.8	117.4	93.7	124.8	114.3	103.0	124.8	117.4	92.7	124.6	113.8	92.7	124.8	113.9	100.0	105.5	103.6
44	Flooring	95.5	178.2	119.7	94.2	178.2	118.8	95.3	178.2	119.6	92.3	178.2	117.5	93.9	178.2	118.7	91.6	140.6	106.0
44	Wall Finishes & Painting/Coating	92.3	139.1	121.2	92.3	139.1	121.2	92.3	139.1	121.2	90.1	139.1	120.4	91.2	139.1	120.8	90.1	109.4	102.0
44	FINISHES	99.4	138.1	121.0	95.6	138.1	119.3	99.3	138.3	121.1	95.0	138.0	119.0	95.6	137.9	119.2	96.9	114.2	106.5
44	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	117.1	103.4	100.0	117.1	103.4	100.0	117.7	103.5	100.0	107.0	101.4	100.0	116.6	103.3	100.0	105.3	101.1
44	FIRE SUPPRESSION, PLUMBING & HVAC	100.0	111.9	104.8	94.1	111.6	101.2	100.0	111.7	104.7	95.0	115.0	103.1	95.0	124.6	107.0	95.0	102.0	97.8
44	ELECTRICAL, COMMUNICATIONS & UTIL.	100.6	98.8	99.7	97.6	98.8	98.3	100.5	98.8	99.7	102.8	101.8	102.3	99.1	128.4	114.2	102.8	93.0	97.7
44	WEIGHTED AVERAGE	100.8	124.7	111.4	94.9	122.1	106.9	100.6	122.2	110.1	96.1	123.3	108.1	95.5	129.9	110.7	97.3	108.4	102.2
DIVISION		MASSACHUSETTS																	
		HYANNIS			LAWRENCE			LOWELL			NEW BEDFORD			PITTSFIELD			SPRINGFIELD		
		026			019			018			027			012			010 - 011		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
44	CONTRACTOR EQUIPMENT		102.2	102.2		102.2	102.2		100.4	100.4		103.1	103.1		100.4	100.4		100.4	100.4
44	SITE & INFRASTRUCTURE, DEMOLITION	88.8	103.9	99.2	93.1	104.0	100.6	92.4	103.9	100.3	90.0	104.0	99.7	93.4	102.2	99.4	92.8	102.4	99.5
44	Concrete Forming & Accessories	95.0	127.2	123.1	102.1	128.0	124.6	99.4	128.0	124.3	102.4	127.5	124.2	99.3	106.5	105.5	99.6	108.4	107.2
44	Concrete Reinforcing	83.0	121.5	102.4	102.7	135.5	119.2	103.6	135.2	119.5	103.6	121.5	112.6	85.8	108.6	97.3	103.6	125.7	114.7
44	Cast-In-Place Concrete	93.6	152.0	116.6	103.5	146.8	120.5	94.1	146.8	114.8	87.4	152.6	113.1	102.6	121.8	110.2	97.9	124.3	108.3
44	CONCRETE	100.4	133.9	116.7	110.8	135.0	122.6	101.4	134.8	117.7	102.9	134.2	118.2	102.9	111.7	107.2	103.3	116.6	109.8
44	MASONRY	106.9	158.8	138.6	107.1	158.8	138.7	94.7	151.9	129.6	106.8	158.8	138.5	95.4	121.6	111.4	95.0	126.1	114.0
44	METALS	94.5	115.2	101.3	95.5	121.4	104.0	95.4	118.6	103.1	98.0	115.6	103.8	95.3	102.4	97.6	98.0	109.4	101.7
44	WOOD, PLASTICS & COMPOSITES	91.2	124.7	110.6	100.0	124.7	111.3	99.5	124.7	114.1	100.0	125.0	114.4	99.5	106.0	103.3	99.5	106.0	103.3
44	THERMAL & MOISTURE PROTECTION	101.2	141.2	117.5	101.5	145.1	119.2	101.4	143.2	118.4	101.5	140.4	117.3	101.4	116.3	107.5	101.4	118.3	108.2
44	OPENINGS	92.8	120.5	99.8	96.6	130.0	105.0	102.4	130.0	109.4	96.6	120.6	102.6	102.4	107.3	103.6	102.4	111.9	104.8
44	Plaster & Gypsum Board	87.6	124.8	114.2	98.7	124.8	117.4	98.7	124.8	117.4	95.7	124.8	116.5	98.7	105.5	103.6	98.7	105.5	103.6
44	Ceilings & Acoustic Treatment	95.8	124.8	115.0	102.0	124.8	117.1	102.0	124.8	117.1	103.0	124.8	117.4	102.0	105.5	104.3	102.0	105.5	104.3
44	Flooring	92.0	178.2	117.3	94.5	178.2	119.0	94.5	178.2	119.0	95.3	178.2	119.6	94.7	140.6	108.1	94.3	140.6	107.9
44	Wall Finishes & Painting/Coating	92.3	139.1	121.2	90.2	139.1	120.4	90.1	139.1	120.4	92.3	139.1	121.2	90.1	109.4	102.0	91.7	109.4	102.6
44	FINISHES	95.5	138.1	119.3	99.0	138.1	120.8	99.0	138.1	120.8	99.2	138.3	121.0	99.1	113.1	106.9	99.1	114.2	107.5
44	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	117.1	103.4	100.0	117.2	103.4	100.0	117.2	103.4	100.0	117.7	103.5	100.0	103.8	100.8	100.0	105.4	101.1
44	FIRE SUPPRESSION, PLUMBING & HVAC	100.0	111.6	104.7	100.0	119.0	107.7	100.0	124.5	109.9	100.0	111.7	104.7	100.0	97.6	99.1	100.0	102.1	100.9
44	ELECTRICAL, COMMUNICATIONS & UTIL.	98.1	98.8	98.5	101.8	128.4	115.5	102.3	124.2	113.6	101.4	98.8	100.1	102.3	93.0	97.5	102.3	94.9	98.5
44	WEIGHTED AVERAGE	98.0	122.1	108.6	100.5	129.0	113.1	99.4	128.5	112.3	99.9	122.2	109.7	99.6	105.3	102.1	100.0	108.7	103.9
DIVISION		MICHIGAN																	
		WORCESTER			ANN ARBOR			BATTLE CREEK			BAY CITY			DEARBORN			DETROIT		
		015 - 016			481			490			487			481			482		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
44	CONTRACTOR EQUIPMENT		100.4	100.4		110.6	110.6		103.2	103.2		110.6	110.6		110.6	110.6		98.9	98.9
44	SITE & INFRASTRUCTURE, DEMOLITION	92.8	103.9	100.4	74.7	96.5	89.8	84.8	88.5	87.4	66.5	95.7	86.6	74.5	96.6	89.7	89.3	98.2	95.4
44	Concrete Forming & Accessories	99.8	127.1	123.6	100.7	110.6	109.3	98.6	89.8	90.9	100.8	89.2	90.7	100.5	114.6	112.8	101.3	114.6	112.9
44	Concrete Reinforcing	103.6	144.3	124.1	99.7	123.6	111.8	98.1	91.1	94.6	99.7	122.8	111.4	99.7	123.8	111.9	99.0	123.8	111.5
44	Cast-In-Place Concrete	97.3	145.9	116.5	81.9	112.4	93.9	92.4	102.5	96.4	78.4	93.3	84.2	80.1	111.5	92.5	87.9	111.6	97.2
44	CONCRETE	103.0	135.8	119.0	90.3	113.9	101.8	95.2	93.8	94.5	88.5	97.6	92.9	89.3	115.4	102.0	93.2	114.3	103.5
44	MASONRY	94.5	151.9	129.5	97.9	108.5	104.4	96.0	86.8	90.3	97.5	88.5	92.0	97.8	111.9	106.4	96.9	111.9	106.1
44	METALS	98.0	121.6	105.8	93.8	119.0	102.1	93.0	87.3	91.1	94.5	115.9	101.5	93.9	119.4	102.3	97.9	102.2	99.3
44	WOOD, PLASTICS & COMPOSITES	99.9	124.5	114.1	97.8	111.1	105.5	100.1	89.6	94.1	97.8	88.4	92.4	97.8	115.7	108.1	98.2	115.7	108.3
44	THERMAL & MOISTURE PROTECTION	101.4	137.8	116.2	101.3	110.0	104.8	93.7	87.4	91.2	99.1	96.0	97.8	99.9	114.7	105.9	98.3	114.8	105.0
44	OPENINGS	102.4	132.4	110.0	95.1	109.8	98.8	92.7	83.8	90.5	95.1	95.6	95.2	95.1	112.3	99.4	96.6	112.3	100.6
44	Plaster & Gypsum Board	98.7	124.6	117.2	104.7	110.4	108.8	94.6	85.4	88.0	104.7	87.0	92.1	104.7	115.1	112.2	104.7	115.1	112.2
44	Ceilings & Acoustic Treatment	102.0	124.6	116.9	93.7	110.4	104.7	93.8	85.4	88.2	94.7	87.0	89.6	93.7	115.1	107.9	94.7	115.1	108.2
44	Flooring	94.5	170.9	116.9	94.2	117.1	100.9	98.7	96.2	98.0	94.0	80.5	90.0	93.8	117.8	100.8	93.9	117.8	100.9
44	Wall Finishes & Painting/Coating	90.1	139.1	120.4	92.8	102.0	98.5	96.0	82.6	87.7	92.8	83.3	87.7	92.8	102.1	98.5	94.3	102.1	99.1
44	FINISHES	99.0	136.5	119.9	94.8	111.1	103.9	96.5	90.1	92.9	94.5	86.2	89.9	94.7	114.3	105.6	96.2	114.3	106.3
44	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	110.4	102.1	100.0	106.8	101.												

City Cost Indexes

DIVISION		MICHIGAN																				
		FLINT			GAYLORD			GRAND RAPIDS			IRON MOUNTAIN			JACKSON			KALAMAZOO					
		484 - 485			497			493,495			498 - 499			492			491					
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL			
015433	CONTRACTOR EQUIPMENT		110.6	110.6		105.6	105.6		103.2	103.2		94.9	94.9		105.6	105.6		103.2	103.2			
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	64.3	95.9	86.1	79.0	86.7	84.3	86.3	88.4	87.7	87.5	94.9	92.6	101.3	88.4	92.4	85.1	88.5				
0310	Concrete Forming & Accessories	103.5	91.4	93.0	95.9	56.1	61.2	98.9	81.0	83.4	88.0	86.1	86.4	93.4	86.0	86.7	96.6	93.5				
0320	Concrete Reinforcing	99.7	123.1	111.5	91.5	92.7	92.1	98.1	90.8	94.4	91.3	94.4	92.8	88.9	122.9	106.0	98.1	91.8				
0330	Cast-in-Place Concrete	82.5	95.4	87.6	92.2	71.4	84.0	98.4	95.5	97.3	109.2	89.4	101.4	92.1	94.5	93.0	94.3	102.4				
03	CONCRETE	90.7	99.4	95.0	91.6	69.8	81.0	98.2	87.5	93.0	101.2	88.9	95.2	86.8	97.4	91.9	96.4	92.8				
04	MASONRY	98.0	96.2	96.9	106.1	82.9	91.9	91.8	81.9	85.8	92.5	88.8	90.3	86.7	93.2	90.7	94.6	88.5				
05	METALS	93.9	116.5	101.4	94.1	100.6	96.3	94.2	86.3	91.6	93.5	90.7	92.6	94.3	113.8	100.8	93.0	87.0				
06	WOOD, PLASTICS & COMPOSITES	100.9	89.7	94.5	92.5	48.8	67.3	97.2	79.1	86.8	87.3	86.1	86.6	91.3	86.3	88.4	100.1	89.6				
07	THERMAL & MOISTURE PROTECTION	99.1	99.3	99.2	92.2	70.8	83.5	95.5	77.1	88.0	95.4	84.1	90.8	91.6	96.6	93.6	93.7	87.1				
08	OPENINGS	95.1	96.3	95.4	95.0	53.9	84.7	96.6	82.2	92.9	100.6	73.4	93.7	94.0	87.2	92.3	92.7	83.0				
0920	Plaster & Gypsum Board	106.5	88.4	93.5	94.0	46.0	59.7	95.5	74.6	80.6	58.1	86.1	78.1	92.5	84.6	86.8	94.6	85.4				
0950, 0980	Ceilings & Acoustic Treatment	93.7	88.4	90.2	92.0	46.0	61.6	92.9	74.6	80.8	91.8	86.1	88.0	92.9	84.6	87.4	93.8	85.1				
0960	Flooring	94.0	83.2	90.8	91.8	50.4	79.7	98.9	70.5	90.5	112.8	96.8	108.1	90.5	69.4	84.3	98.7	75.8				
0970, 0990	Wall Finishes & Painting/Coating	92.8	90.0	91.1	92.5	45.6	63.5	96.0	81.3	86.9	111.5	58.8	79.0	92.5	75.7	82.1	96.0	82.8				
09	FINISHES	94.0	89.0	91.2	96.7	51.8	71.7	96.6	78.4	86.5	99.3	85.3	91.5	98.0	82.4	89.3	96.5	86.7				
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	98.2	99.6	100.0	91.8	98.4	100.0	101.6	100.3	100.0	93.7	98.7	100.0	96.0	99.6	100.0	100.0				
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	100.0	94.1	97.6	94.4	82.8	89.7	99.9	83.2	93.1	94.3	86.8	91.3	94.4	92.0	93.4	99.9	83.0				
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	95.6	95.0	95.3	92.9	49.0	70.3	99.1	75.1	86.7	99.2	87.6	93.2	96.8	110.3	103.8	94.7	86.9				
MF2010	WEIGHTED AVERAGE	95.5	97.1	96.2	94.7	72.8	85.1	97.2	83.0	90.9	96.7	87.8	92.8	94.3	95.9	95.0	96.3	87.4				
DIVISION		MINNESOTA																				
		LANSING			MUSKEGON			ROYAL OAK			SAGINAW			TRAVERSE CITY			BEMIDJIE					
		488 - 489			494			480,483			486			496			566					
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL			
015433	CONTRACTOR EQUIPMENT		110.6	110.6		103.2	103.2		96.4	96.4		110.6	110.6		94.9	94.9		96.4	96.4			
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	83.2	95.8	91.9	82.9	88.4	86.7	79.0	96.0	90.7	67.4	95.7	86.9	74.3	94.6	88.3	98.4	98.4				
0310	Concrete Forming & Accessories	104.2	88.4	90.5	99.1	88.1	89.5	97.1	111.7	109.8	100.7	89.0	90.5	88.0	71.1	73.3	90.8	94.2				
0320	Concrete Reinforcing	99.7	122.9	111.4	98.8	90.5	94.6	90.4	120.5	105.6	99.7	122.8	111.3	92.7	90.2	91.4	103.5	109.4				
0330	Cast-in-Place Concrete	87.0	93.7	89.6	92.1	96.5	93.8	71.7	110.4	87.0	80.9	93.2	85.8	85.2	63.7	76.7	105.6	106.6				
03	CONCRETE	93.1	97.5	95.2	93.6	90.9	92.3	78.0	111.9	94.5	89.8	97.5	93.6	83.4	72.7	78.2	99.5	102.4				
04	MASONRY	91.7	93.8	92.9	93.1	76.2	82.8	93.0	111.9	104.5	99.5	88.5	92.8	90.7	82.8	85.8	100.3	107.1				
05	METALS	92.5	115.9	100.2	90.7	85.9	89.1	97.0	99.9	98.0	93.9	115.7	101.1	93.5	88.8	91.9	92.6	102.5				
06	WOOD, PLASTICS & COMPOSITES	100.3	86.5	92.3	96.1	88.5	91.7	93.2	112.2	104.2	93.6	88.4	90.6	87.3	69.5	77.0	72.8	90.9				
07	THERMAL & MOISTURE PROTECTION	100.2	92.0	96.9	92.9	78.2	86.9	97.7	114.0	104.4	99.8	96.0	98.3	94.5	71.4	85.1	108.5	99.7				
08	OPENINGS	95.1	94.5	94.9	92.0	87.7	90.9	95.3	110.1	99.0	92.9	95.6	93.6	100.6	64.9	91.6	97.7	111.8				
0920	Plaster & Gypsum Board	97.4	85.0	88.6	75.1	84.2	81.6	101.5	111.5	108.6	104.7	87.0	92.1	58.1	69.0	65.9	105.6	91.0				
0950, 0980	Ceilings & Acoustic Treatment	93.7	85.0	88.0	94.7	84.2	87.8	92.9	111.5	105.2	93.7	87.0	89.3	91.8	69.0	76.7	137.6	91.0				
0960	Flooring	104.0	83.2	97.9	97.9	65.3	88.3	91.8	116.4	99.0	94.2	80.5	90.2	112.8	50.4	94.5	109.8	126.5				
0970, 0990	Wall Finishes & Painting/Coating	103.9	84.1	91.7	95.3	81.3	86.7	94.3	102.0	99.0	92.8	83.3	87.0	111.5	45.6	70.8	95.0	101.0				
09	FINISHES	98.5	86.3	91.7	93.4	83.0	87.6	93.8	111.9	103.9	94.4	86.2	89.9	98.2	63.8	79.0	112.4	105.2				
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	97.6	99.5	100.0	102.8	100.6	100.0	102.7	100.5	100.0	97.1	99.4	100.0	90.3	98.1	100.0	100.0				
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	99.9	92.2	96.8	99.8	85.2	93.9	94.5	109.6	100.6	100.0	87.5	95.0	94.3	82.4	89.5	94.5	88.1				
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	98.7	93.0	95.8	95.2	80.1	87.4	97.6	94.0	95.8	92.7	91.3	92.0	94.6	76.7	85.3	104.5	104.0				
MF2010	WEIGHTED AVERAGE	96.4	95.1	95.9	94.9	84.9	90.5	93.4	106.2	99.1	95.0	93.5	94.4	93.6	78.7	87.0	98.7	101.3				
DIVISION		MINNESOTA																				
		BRAINERD			DETROIT LAKES			DULUTH			MANKATO			MINNEAPOLIS			ROCHESTER					
		564			565			556 - 558			560			553 - 555			559					
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL			
015433	CONTRACTOR EQUIPMENT		101.4	101.4		98.7	98.7		101.2	101.2		101.4	101.4		104.7	104.7		101.2	101.2			
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	96.6	103.5	101.3	96.4	99.1	98.2	98.8	102.3	101.2	92.9	104.1	100.6	101.3	107.6	105.7	100.3	107.1				
0310	Concrete Forming & Accessories	94.0	97.0	96.6	88.1	96.9	95.7	101.1	116.4	114.4	101.0	104.7	104.2	103.2	129.6	126.1	105.8	126.6				
0320	Concrete Reinforcing	102.3	109.6	106.0	103.5	109.4	106.5	98.8	109.9	104.0	102.1	119.8	111.0	99.0	120.2	109.7	98.8	119.9				
0330	Cast-in-Place Concrete	114.8	111.6	113.6	102.6	110.8	105.8	107.4	109.8	108.4	105.8	110.7	107.7	120.3	119.0	119.8	117.9	120.2				
03	CONCRETE	103.9	105.4	104.6	97.0	105.0	100.9	102.3	113.5	107.7	99.0	110.4	104.6	110.5	124.5	117.3	107.7	120.5				
04	MASONRY	123.6	117.6	119.9	123.6	114.8	118.2	108.6	121.3	116.3	111.9	114.4	113.4	108.1	129.1	120.9	107.3	117.0				
05	METALS	93.8	122.5	103.3	92.6	122.3	102.4	99.6	125.1	108.0	93.6	128.2	105.1	102.4	131.9	112.1	99.5	130.1				
06	WOOD, PLASTICS & COMPOSITES	93.7	90.7	92.0	70.2	90.9	82.2	110.4	116.3	113.8	101.9	102.6	102.3	113.4	127.8	121.8	113.6	120.4				
07	THERMAL & MOISTURE PROTECTION	107.6	112.3	109.5	108.3	112.5	110.0	109.0	119.9	113.5	108.0	103.2	106.0	108.8	132.6	118.5	109.1	124.6				
08	OPENINGS	85.7	111.8	92.2	97.6	111.9	101.2	93.9	121.1	100.7	90.4	121.3	98.2	97.2	135.7	106.9	93.9	126.7				
0920	Plaster & Gypsum Board	86.5	91.0	89.7	104.7	91.0	94.9	94.3	117.2	110.7	90.6	103.2	99.6	102.2	126.0	121.3	101.7	130.1				
0950, 0980	Ceilings & Acoustic Treatment	67.9	91.0	83.1	137.6	91.0	106.8	92.0	117.2	108.7	67.9	103.2	91.2	93.8	129.0	117.1	92.0	101.1				
0960	Flooring	108.6	126.5	113.9	108.4	126.5	113.7	105.9	127.8	112.4	110.7	126.5	115.4	107.3	126.5	110.4	106.1	126.5				
0970, 0990	Wall Finishes & Painting/Coating	90.2	101.0	96.9	96.0	101.0	99.1	88.5	111.6	102.7	101.7	105.1	103.8	97.6	132.1	118.9	92.0	106.1				
09	FINISHES	94.1	101.9	98.5	111.7	102.1	106.4	97.0	118.4	108.9	95.7	108.6	102.9	98.4	129.7	115.8	98.2	113.1				
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	97.9	99.6	100.0	98.2	99.6	100.0	105.4	101.1	100.0	98.1	99.6	100.0	110.2	102.6	100.0	104.1				
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	93.7	92.0	93.0	94.5	91.7	93.3	100.1	101.0	100.5	93.7	91.7	92.5	100.0	121.6	108.8	100.0	99.4				
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	102.1	108.9	105.6	104.1	70.5	86.8	99.5	108.9	104.3	108.7	89.0	98.5	101.6	113.1	107.6	100.8	99.1				
MF2010	WEIGHTED AVERAGE	97.6	105.3	101.0	99.4	99.3	99.4	100.1	112.0	105.4	97.7	104.6	100.7	102.1	123.0							

Cost Indexes

DIVISION	MINNESOTA																		MISSISSIPPI					
	SAINT PAUL			ST. CLOUD			THIEF RIVER FALLS			WILLMAR			WINDOM			BILOXI								
	550 - 551			563			567			562			561			395								
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL						
CONTRACTOR EQUIPMENT	101.2	101.2		101.4	101.4		98.7	98.7		101.4	101.4		101.4	101.4		98.5	98.5							
34 SITE & INFRASTRUCTURE, DEMOLITION	101.0	102.9	102.3	91.1	105.4	101.0	97.1	98.6	98.1	90.8	103.2	99.4	84.1	101.9	96.4	101.8	88.9	92.9						
Concrete Forming & Accessories	97.8	129.3	125.2	91.3	124.9	120.5	91.4	93.4	93.2	91.2	96.2	95.5	95.2	87.9	88.9	94.7	56.1	61.2						
Concrete Reinforcing	95.4	120.1	107.8	102.3	120.0	111.2	103.9	109.3	106.7	101.9	119.6	110.8	101.9	118.7	110.4	96.3	60.1	78.1						
Cashtin-Place Concrete	120.3	118.4	119.5	101.3	117.9	107.8	104.7	91.3	99.4	102.9	89.3	97.5	89.0	67.0	80.4	106.6	55.2	86.4						
CONCRETE	112.0	124.1	117.9	94.9	121.9	108.0	98.2	96.8	97.5	95.0	99.3	97.1	85.6	87.8	86.6	98.8	58.2	79.0						
MASONRY	117.2	129.1	124.4	108.6	126.5	119.5	100.2	107.1	104.4	113.0	117.6	115.8	123.1	90.1	102.9	95.6	45.7	65.1						
METALS	99.0	131.6	109.8	94.5	129.5	106.0	92.8	121.8	102.3	93.6	127.0	104.6	93.5	124.6	103.8	92.5	83.7	89.6						
WOOD, PLASTICS & COMPOSITES	106.6	127.6	118.7	91.3	122.2	109.2	73.6	90.9	83.6	91.1	91.0	91.0	94.9	88.1	91.0	99.3	59.6	76.4						
THERMAL & MOISTURE PROTECTION	110.3	132.4	119.3	107.8	122.8	113.9	109.4	101.5	106.2	107.6	109.6	108.4	107.6	86.6	99.0	92.8	57.0	78.3						
OPENINGS	91.7	135.6	102.7	90.4	132.7	101.1	97.7	111.9	101.3	88.0	96.2	90.0	92.1	94.6	92.8	97.9	60.7	88.5						
Plaster & Gypsum Board	91.2	128.9	118.1	86.5	123.4	112.9	105.2	91.0	95.0	86.5	91.2	89.9	86.5	88.2	87.8	97.3	58.8	69.8						
Ceilings & Acoustic Treatment	89.3	128.9	115.4	67.9	123.4	104.6	137.6	91.0	106.8	67.9	91.2	83.3	67.9	88.2	81.3	95.8	58.8	71.4						
Flooring	100.0	126.5	107.8	104.6	126.5	111.1	109.4	126.5	114.4	106.5	126.5	112.4	109.2	126.5	114.3	117.7	55.3	99.4						
Wall Finishes & Painting/Coating	97.6	127.6	116.1	101.7	132.1	120.5	96.0	101.0	99.1	96.0	101.0	99.1	96.0	105.1	101.6	105.7	45.8	68.7						
FINISHES	95.0	129.0	114.0	93.2	126.2	111.6	112.2	100.2	105.5	93.4	99.6	96.8	93.5	95.0	94.3	104.4	55.1	76.9						
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	109.9	102.0	100.0	104.5	100.9	100.0	95.6	99.1	100.0	97.8	99.6	100.0	92.9	98.6	100.0	59.9	92.0						
FIRE SUPPRESSION, PLUMBING & HVAC	100.0	117.1	106.9	99.7	121.3	108.4	94.5	87.7	91.7	93.7	110.0	100.3	93.7	86.1	90.6	99.9	50.4	79.9						
ELECTRICAL, COMMUNICATIONS & UTIL.	98.7	113.1	106.1	102.1	113.1	107.8	101.7	70.5	85.6	102.1	90.5	96.1	108.7	89.0	98.5	98.8	59.0	78.3						
WEIGHTED AVERAGE	101.1	121.5	110.1	97.6	120.8	107.9	98.3	95.8	97.2	96.0	105.1	100.0	96.4	93.8	95.2	98.3	60.2	81.5						
DIVISION	MISSISSIPPI																							
	CLARKSDALE			COLUMBUS			GREENVILLE			GREENWOOD			JACKSON			LAUREL								
	386			397			387			389			390 - 392			394								
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL						
CONTRACTOR EQUIPMENT	98.5	98.5		98.5	98.5		98.5	98.5		98.5	98.5		98.5	98.5		98.5	98.5							
34 SITE & INFRASTRUCTURE, DEMOLITION	99.2	88.7	91.9	100.5	89.0	92.6	105.7	88.9	94.1	102.4	88.4	92.8	97.3	88.9	91.5	107.1	88.8	94.5						
Concrete Forming & Accessories	86.1	52.4	56.8	84.3	54.5	58.4	83.0	67.7	69.7	94.6	52.3	57.8	94.0	61.1	65.4	84.4	56.3	59.9						
Concrete Reinforcing	103.8	44.2	73.8	103.2	45.2	74.0	104.4	64.0	84.0	103.8	55.8	79.6	96.3	59.1	77.6	103.8	41.5	72.4						
Cashtin-Place Concrete	103.9	56.1	85.1	108.7	61.4	90.1	107.0	58.3	87.8	111.8	55.7	89.7	90.7	59.1	78.2	106.3	57.8	87.2						
CONCRETE	97.0	53.8	76.0	100.6	56.8	79.2	102.0	65.1	84.0	103.3	55.7	80.1	90.8	61.5	76.5	102.6	55.7	79.8						
MASONRY	95.4	47.6	66.2	122.5	54.6	81.1	141.8	51.1	86.4	96.0	47.4	66.4	96.6	51.1	68.8	118.2	50.9	77.1						
METALS	89.6	76.2	85.2	89.5	77.1	85.4	90.7	85.6	89.0	89.6	77.7	85.7	92.4	83.5	89.5	89.6	76.1	85.1						
WOOD, PLASTICS & COMPOSITES	87.3	54.4	68.3	85.4	55.5	68.1	84.1	72.4	77.4	99.3	54.4	73.4	98.0	63.3	78.0	86.4	58.0	70.0						
THERMAL & MOISTURE PROTECTION	92.7	49.8	75.2	92.8	54.3	77.1	93.0	63.0	80.8	93.0	49.7	75.4	94.6	62.0	81.4	92.9	56.1	77.9						
OPENINGS	97.1	52.4	85.9	97.1	52.5	85.9	97.1	65.1	89.1	97.1	53.8	86.2	98.3	58.8	88.3	93.7	53.3	83.5						
Plaster & Gypsum Board	85.5	53.5	62.6	85.1	54.5	63.3	85.1	72.0	75.7	96.0	53.5	65.6	91.2	62.7	70.8	85.1	57.2	65.2						
Ceilings & Acoustic Treatment	89.3	53.5	65.6	89.3	54.5	66.3	91.3	72.0	78.6	89.3	53.5	65.6	91.2	62.7	73.0	89.3	57.2	68.1						
Flooring	111.4	55.3	95.0	110.2	62.1	96.1	109.4	55.3	93.5	117.7	55.3	99.4	118.1	55.3	99.7	108.4	55.3	92.8						
Wall Finishes & Painting/Coating	105.7	48.6	70.5	105.7	55.8	74.9	105.7	69.4	83.3	105.7	48.6	70.5	105.7	69.4	83.3	105.7	64.2	80.1						
FINISHES	99.5	52.8	73.5	99.4	56.4	75.4	100.0	66.6	81.4	103.0	52.8	75.0	103.4	61.3	79.9	99.5	57.5	76.1						
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	60.3	92.1	100.0	61.5	92.3	100.0	63.2	92.7	100.0	60.2	92.1	100.0	62.2	92.5	100.0	40.4	88.1						
FIRE SUPPRESSION, PLUMBING & HVAC	97.4	44.3	75.9	96.7	40.3	73.8	99.9	51.1	80.1	97.4	42.2	75.0	99.9	56.5	82.3	96.7	49.2	77.5						
ELECTRICAL, COMMUNICATIONS & UTIL.	98.1	49.3	72.9	96.3	52.2	73.5	98.1	66.6	81.9	98.1	46.2	71.3	99.5	66.6	82.5	97.8	59.5	78.1						
WEIGHTED AVERAGE	96.4	55.5	78.4	97.8	56.9	79.8	100.3	65.1	84.7	97.6	55.1	78.8	97.4	64.4	82.9	97.9	58.8	80.6						
DIVISION	MISSISSIPPI																		MISSOURI					
	MCCOMB			MERIDIAN			TUPELO			BOWLING GREEN			CAPE GIRARDEAU			CHILLICOTHE								
	396			393			388			633			637			646								
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL						
CONTRACTOR EQUIPMENT	98.5	98.5		98.5	98.5		98.5	98.5		106.1	106.1		106.1	106.1		102.2	102.2							
34 SITE & INFRASTRUCTURE, DEMOLITION	92.8	88.6	89.9	97.0	89.2	91.6	96.8	88.6	91.1	91.4	93.6	92.9	92.7	93.5	93.3	100.3	90.9	93.8						
Concrete Forming & Accessories	84.3	54.2	58.1	81.9	67.2	69.1	83.5	54.5	58.3	91.8	87.1	87.7	85.7	75.0	76.4	90.3	90.0	90.0						
Concrete Reinforcing	104.4	43.6	73.8	103.2	59.1	81.0	101.6	55.8	78.5	100.9	96.9	98.9	102.1	83.3	92.7	97.5	100.1	98.8						
Cashtin-Place Concrete	94.4	55.6	79.1	101.0	61.6	85.4	103.9	57.6	85.7	94.6	75.6	87.1	93.7	82.5	89.2	93.0	65.8	82.3						
CONCRETE	90.5	54.2	72.8	94.8	65.1	80.3	96.5	57.3	77.4	96.3	86.1	91.4	95.5	80.6	88.3	99.8	83.9	92.1						
MASONRY	123.9	46.9	76.9	95.3	55.3	70.9	131.6	50.6	82.2	124.4	95.9	107.0	121.5	77.3	94.5	98.6	90.8	93.8						
METALS	89.7	74.3	84.6	90.6	83.7	88.3	89.5	77.9	85.7	97.9	110.8	102.1	98.9	104.4	100.8	95.5	96.5	95.8						
WOOD, PLASTICS & COMPOSITES	125.4	57.4	69.2	83.0	69.3	75.1	84.7	55.5	67.8	88.9	87.4	88.0	82.6	72.3	76.6	91.9	96.0	94.3						
THERMAL & MOISTURE PROTECTION	92.4	48.9	74.7	92.6	64.5	81.1	92.6	55.8	77.7	101.0	98.4	99.9	100.9	81.1	92.8	97.6	84.9	92.4						
OPENINGS	97.2	54.1	86.3	97.1	67.9	89.8	97.1	53.7	86.2	99.0	83.1	95.0	99.0	74.3	92.7	90.8	84.5	89.2						
Plaster & Gypsum Board	85.1	56.5	64.7	85.1	68.8	73.4	85.1	54.5	63.3	97.3	87.0	89.9	95.5	71.3	78.2	103.1	95.7	97.8						
Ceilings & Acoustic Treatment	89.3	56.5	67.6	91.3	68.8	76.4	89.3	54.5	66.3	90.1	87.0	88.0	90.1	71.3	77.7	89.5	95.7	93.6						
Flooring	110.2	55.3	94.1	108.4	55.3	92.8	109.7	55.5	93.7	101.2	95.8	99.6	97.5	88.0	94.7	93.5	45.0	79.3						
Wall Finishes & Painting/Coating	105.7	44.6	68.0	105.7	80.3	90.0	105.7	61.9	78.7	102.0	103.4	102.8	102.0	72.7	83.9	94.3	47.3	66.3						
FINISHES	98.6	54.0	73.7	98.9	67.0	81.1	98.9	55.7	74.8	98.5	89.4	93.4	97.1	75.3	84.9	96.4	79.5	87.0						
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	63.9	92.8	100.0	64.3	92.9	100.0	61.5	92.3	100.0	89.5	97.9	100.0	90.4	98.1	100.0	55.7	91.2						
FIRE SUPPRESSION, PLUMBING & HVAC	96.7	37.1	72.6	99.9	58.7	83.2	97.7	46.4	76.9	93.9	86.7	91.0	99.9	94.9	97.8	94.2	44.0	73.9						
ELECTRICAL, COMMUNICATIONS & UTIL.	94.8	52.5	73.0	97.8	59.2	77.9	97.8	52.3	74.4	99.7	82.9	91.0	99.7	107.9	103.9	95.9	34.9	64.5						
WEIGHTED AVERAGE	96.3	54.6	77.9	96.7	66.1	83.2	98.0	57.9	80.4	98.4	90.5	94.9	99.7	89.6	95.3	96.1	70.0	84.6						

City Cost Indexes

DIVISION		MISSOURI																	
		COLUMBIA			FLAT RIVER			HANNIBAL			HARRISONVILLE			JEFFERSON CITY			JOPLIN		
		652			636			634			647			650-651			648		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		107.0	107.0		106.1	106.1		106.1	106.1		102.2	102.2		107.0	107.0		107.0	107.0
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	105.3	95.9	98.8	94.1	93.6	93.8	89.0	93.4	92.0	91.7	95.8	94.5	101.7	95.8	97.6	100.4	96.9	96.9
0310	Concrete Forming & Accessories	87.3	79.5	80.5	97.1	87.1	88.4	90.2	77.3	79.0	87.6	104.1	101.9	96.7	79.3	81.6	101.3	71.3	71.3
0320	Concrete Reinforcing	99.3	115.6	107.5	102.1	105.8	104.0	100.3	96.8	98.5	97.1	111.9	104.5	98.1	106.7	102.4	100.6	72.2	72.2
0330	Cast-in-Place Concrete	89.5	82.6	86.8	97.7	94.2	96.3	89.6	75.1	83.9	95.3	106.7	99.8	90.0	82.5	87.1	100.7	66.1	66.1
03	CONCRETE	86.1	88.8	87.4	99.3	94.2	96.8	92.5	81.6	87.2	96.4	106.7	101.4	87.5	87.0	87.2	99.6	71.3	71.3
04	MASONRY	133.3	85.6	104.2	122.0	78.8	95.6	115.2	95.9	103.4	93.1	107.9	102.1	96.0	85.6	89.7	92.4	94.9	94.9
05	METALS	94.5	119.5	102.7	97.8	113.8	103.1	97.9	109.6	101.7	95.9	112.3	101.4	93.9	115.8	101.1	98.6	98.4	98.4
06	WOOD, PLASTICS & COMPOSITES	92.4	77.1	83.6	95.6	87.4	90.9	87.1	75.1	80.2	88.6	103.7	97.3	102.4	77.1	87.8	102.8	74.5	74.5
07	THERMAL & MOISTURE PROTECTION	93.3	86.0	90.3	101.2	93.8	98.2	100.8	92.3	97.4	96.9	107.7	101.3	93.4	86.0	90.4	97.4	72.2	72.2
08	OPENINGS	90.6	94.5	91.6	99.0	85.7	95.6	99.0	76.4	93.3	91.2	106.0	94.9	87.8	92.1	88.9	92.0	72.4	72.4
0920	Plaster & Gypsum Board	99.9	76.3	83.1	102.7	87.0	91.5	95.9	74.3	80.5	97.1	103.6	101.8	104.2	76.3	84.3	110.2	71.3	71.3
0950, 0980	Ceilings & Acoustic Treatment	94.9	76.3	82.6	90.1	87.0	88.0	90.1	74.3	79.7	89.5	103.6	98.8	94.0	76.3	82.3	90.4	71.3	71.3
0960	Flooring	112.4	95.9	107.5	104.5	88.0	99.6	100.3	95.8	99.0	89.0	107.3	94.4	120.0	95.9	112.9	118.8	42.2	42.2
0970, 0990	Wall Finishes & Painting/Coating	104.0	79.4	88.8	102.0	62.6	77.7	102.0	103.4	102.8	99.2	107.0	104.0	104.0	79.4	88.8	93.8	37.0	37.0
09	FINISHES	99.5	81.1	89.2	100.2	83.4	90.9	97.8	82.1	89.1	93.9	104.8	100.0	102.4	81.1	90.5	103.0	64.4	64.4
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	95.3	99.1	100.0	92.6	98.5	100.0	94.7	91.0	100.0	97.6	99.5	100.0	95.3	99.1	100.0	62.0	62.0
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	99.9	95.2	98.0	93.9	86.7	91.0	93.9	86.6	91.0	94.1	103.3	97.8	99.9	89.5	95.7	100.2	48.0	48.0
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	95.6	88.0	91.7	104.2	107.9	106.1	98.4	82.9	90.4	102.6	101.7	102.1	99.3	88.0	93.4	93.7	69.0	69.0
MF2010	WEIGHTED AVERAGE	97.7	92.4	95.4	99.4	92.9	96.5	97.3	87.1	92.8	95.7	104.5	99.6	96.2	90.5	93.7	98.2	70.4	70.4

DIVISION		MISSOURI																	
		KANSAS CITY			KIRKSVILLE			POPLAR BLUFF			ROLLA			SEDALIA			ST. JOSEPH		
		640-641			635			639			654-655			653			638		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		103.4	103.4		98.5	98.5		100.9	100.9		107.0	107.0		99.2	99.2		100.8	100.8
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	93.2	98.2	96.7	90.3	89.5	89.8	77.2	92.9	88.1	104.8	94.0	97.3	96.7	91.8	93.3	80.7	93.7	93.7
0310	Concrete Forming & Accessories	100.1	107.9	106.9	83.5	77.9	78.6	83.7	72.6	74.0	93.9	90.4	90.8	91.3	75.8	81.3	84.7	73.6	73.6
0320	Concrete Reinforcing	95.6	116.5	106.1	101.2	86.0	93.5	104.2	83.3	93.7	99.8	67.8	83.7	98.3	104.7	101.5	103.6	83.0	83.0
0330	Cast-in-Place Concrete	93.7	108.0	99.3	97.6	75.1	88.8	75.1	79.7	77.0	91.6	85.5	89.2	95.7	83.2	90.8	80.3	82.0	82.0
03	CONCRETE	95.6	109.7	102.5	110.1	79.3	95.1	85.7	78.1	82.0	87.8	85.8	86.8	99.2	86.5	93.0	89.4	76.1	76.1
04	MASONRY	95.1	109.7	104.0	128.1	87.4	103.2	119.9	71.6	90.4	109.8	78.8	90.8	115.7	86.0	97.5	119.6	76.2	76.2
05	METALS	106.5	114.9	109.3	97.4	96.4	97.1	98.0	96.5	97.5	93.8	102.3	96.6	92.4	106.7	97.1	98.3	96.1	96.1
06	WOOD, PLASTICS & COMPOSITES	102.0	107.6	105.2	75.9	77.1	76.6	75.1	72.3	73.5	99.1	93.2	95.7	92.0	77.1	83.4	76.5	72.3	72.3
07	THERMAL & MOISTURE PROTECTION	97.0	109.6	102.1	107.3	85.8	98.6	105.9	80.9	95.7	93.4	91.0	92.4	98.8	93.0	96.4	106.1	79.4	79.4
08	OPENINGS	98.2	109.8	101.2	103.3	74.9	96.2	104.3	73.6	96.6	90.6	87.3	89.8	93.9	87.1	92.2	104.3	67.1	67.1
0920	Plaster & Gypsum Board	106.1	107.6	107.2	90.4	76.3	80.3	90.9	71.3	76.9	100.8	92.9	95.1	93.9	76.3	81.4	92.7	71.3	71.3
0950, 0980	Ceilings & Acoustic Treatment	96.7	107.6	103.9	88.3	76.3	80.4	90.1	71.3	77.7	94.9	92.9	93.6	94.9	76.3	82.6	90.1	71.5	71.5
0960	Flooring	94.3	109.0	98.6	77.5	95.9	82.9	92.2	81.4	89.1	116.3	95.9	110.3	88.4	97.1	90.9	92.7	81.4	81.4
0970, 0990	Wall Finishes & Painting/Coating	99.2	114.7	108.7	97.2	79.4	86.2	96.7	72.1	81.5	104.0	86.4	93.1	104.0	105.7	105.0	96.7	57.6	57.6
09	FINISHES	98.1	108.6	104.0	96.7	80.2	87.5	97.0	72.7	83.4	100.9	90.4	95.0	97.4	84.5	90.2	97.7	71.6	71.6
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	101.5	100.3	100.0	93.1	90.7	100.0	88.4	97.0	100.0	57.1	91.5	100.0	89.7	97.9	100.0	90.0	90.0
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	100.0	110.9	104.4	93.9	86.1	90.7	93.9	91.3	92.9	93.9	86.9	91.1	93.9	96.0	94.7	93.9	94.4	94.4
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	104.3	102.0	103.1	98.6	82.8	90.5	98.9	107.8	103.5	94.1	87.9	90.9	95.7	101.6	98.8	97.9	107.8	107.8
MF2010	WEIGHTED AVERAGE	100.1	108.0	103.6	100.4	83.8	93.1	97.0	86.8	92.5	95.2	87.9	92.0	96.6	92.8	94.9	97.5	81.0	81.0

DIVISION		MISSOURI																MONTANA			
		SPRINGFIELD			ST. JOSEPH			ST. LOUIS			BILLINGS			BUTTE			GREAT FALLS				
		656-658			644-645			630-631			590-591			597			594				
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL		
015433	CONTRACTOR EQUIPMENT		101.7	101.7		102.2	102.2		107.1	107.1		98.9	98.9		98.7	98.7		98.7	98.7		
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	99.2	93.6	95.4	94.7	94.0	94.2	92.6	97.5	96.0	98.6	97.0	97.5	109.4	96.3	100.4	113.3	97.1	97.1		
0310	Concrete Forming & Accessories	98.8	74.1	77.4	99.9	87.6	89.2	97.1	103.4	102.6	101.9	65.9	70.6	90.3	64.0	67.5	101.7	67.4	67.4		
0320	Concrete Reinforcing	95.6	115.1	105.4	94.4	111.1	102.8	93.4	107.6	100.5	101.4	80.2	90.7	110.0	83.3	95.0	101.4	80.2	80.2		
0330	Cast-in-Place Concrete	97.2	72.4	87.5	93.6	104.1	97.7	93.7	106.3	98.7	115.2	66.3	95.9	126.8	67.9	103.6	134.0	64.4	64.4		
03	CONCRETE	96.3	82.1	89.4	95.4	96.4	96.9	94.9	106.0	100.3	106.3	69.7	83.3	110.4	69.5	90.5	115.5	69.7	69.7		
04	MASONRY	89.5	84.5	86.4	94.9	93.9	94.3	101.5	109.4	106.3	125.4	69.9	91.5	120.7	71.7	90.8	125.3	73.9	73.9		
05	METALS	98.4	106.2	101.0	102.5	110.5	105.1	103.8	118.1	108.5	110.2	89.8	103.5	103.0	89.9	98.7	106.8	89.8	89.8		
06	WOOD, PLASTICS & COMPOSITES	99.0	73.3	84.2	102.8	85.1	92.5	95.5	101.7	99.1	97.8	66.2	79.6	96.9	63.6	73.4	98.9	66.2	66.2		
07	THERMAL & MOISTURE PROTECTION	97.5	80.1	90.5	97.5	95.5	96.7	100.9	106.7	103.3	107.4	69.0	91.8	107.3	69.5	91.9	107.8	69.4	69.4		
08	OPENINGS	96.1	81.5	92.4	96.8	86.4	96.7	98.2	108.6	100.9	96.6	66.3	89.0	94.6	66.1	87.4	98.0	65.5	65.5		
0920	Plaster & Gypsum Board	102.2	72.3	80.9	111.8	84.4	92.2	103.0	71.7	102.3	96.9	65.5	74.4	100.6	62.7	73.6	98.9	65.5	65.5		
0950, 0980	Ceilings & Acoustic Treatment	94.9	72.3	80.0	95.8	84.4	88.3	95.5	101.7	99.6	106.2	65.5	79.3	111.5	62.7	79.3	113.3	65.5	65.5		
0960	Flooring	113.8	42.2	92.8	97.5	97.1	97.4	104.2	99.3	102.8	109.2	73.6	98.7	106.4	77.7	98.0	114.8	77.7	77.7		
0970, 0990	Wall Finishes & Painting/Coating	98.0	52.9	70.2	94.3	88.8	90.9	102.0	106.7	104.9	97.5	54.5	71.0	96.0	54.0	70.1	96.0	61.0	61.0		
09	FINISHES	103.2	65.4	82.1	99.2	88.7	93.4	101.4	102.4	101.9	104.5	65.7	82.8	105.0	65.0	82.7	106.2	67.0	67.0		
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	93.4	98.7	100.0	96.8	99.4	100.0	105.7	105.5	100.0	74.9	95.0	100.0	74.7	95.0	100.0	71.3	71.3		
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	99.9	70.8	88.1	100.2	87.3	94.9	99.9	101.7	100.6	100.2	71.4	88.5	100.3	68.4	87.4	100.3	73.5	73.5		
26, 27, 3370	ELECTRICAL, COMM																				

Cost Indexes

DIVISION		MONTANA																	
		HAVRE			HELENA			KALISPELL			MILES CITY			MISSOULA			WOLF POINT		
		595			596			599			593			598			592		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		98.7	98.7		98.7	98.7		98.7	98.7		98.7	98.7		98.7	98.7		98.7	98.7	
34	SITE & INFRASTRUCTURE, DEMOLITION	118.8	96.7	103.6	101.9	96.2	98.0	98.2	96.0	96.7	105.9	96.4	99.3	89.2	96.2	94.0	127.4	95.6	106.1
	Concrete Forming & Accessories	84.2	57.2	60.7	101.9	66.6	71.2	93.2	55.2	60.1	100.4	55.7	61.5	93.2	62.3	66.4	93.7	50.7	56.3
	Concrete Reinforcing	110.8	64.3	87.4	104.9	64.0	84.3	112.9	80.0	96.3	110.4	64.3	87.2	111.8	80.2	95.9	112.0	64.3	88.0
	Casht-Place Concrete	136.5	62.9	107.5	104.0	63.3	88.0	110.1	60.6	90.6	120.5	62.6	97.7	93.4	62.6	81.3	135.0	63.0	106.6
	CONCRETE	118.9	61.7	91.0	101.0	65.9	83.9	99.8	62.9	81.8	107.2	60.9	84.6	87.9	66.8	77.7	122.5	58.8	91.5
	MASONRY	121.6	72.0	91.3	116.6	68.5	87.2	119.6	66.9	87.4	127.2	67.2	90.6	145.2	70.2	99.4	128.3	67.9	91.5
	METALS	99.4	82.0	93.7	106.0	81.3	97.8	99.3	88.2	95.6	98.6	81.9	93.1	99.8	89.0	96.3	98.7	81.8	93.1
	WOOD, PLASTICS & COMPOSITES	79.6	54.1	64.9	98.9	66.2	80.0	89.8	52.4	68.2	96.4	54.5	72.2	89.8	62.4	74.0	88.9	47.5	65.0
	THERMAL & MOISTURE PROTECTION	107.6	65.6	90.5	107.6	70.4	92.5	106.9	66.5	90.5	107.2	63.8	89.5	106.5	68.9	91.2	108.0	62.8	89.6
	OPENINGS	94.7	54.5	84.6	97.4	60.0	88.0	94.7	58.1	85.5	94.2	54.7	84.2	94.7	63.3	86.8	94.2	50.7	83.2
	Plaster & Gypsum Board	96.1	52.9	65.3	97.7	65.5	74.7	100.6	51.2	65.3	107.8	53.4	68.9	100.6	61.5	72.7	102.3	46.2	62.2
	Ceilings & Acoustic Treatment	111.5	52.9	72.8	110.6	65.5	80.8	111.5	51.2	71.7	109.7	53.4	72.5	111.5	61.5	78.5	109.7	46.2	67.7
	Flooring	103.1	77.7	95.6	114.8	61.9	99.3	108.5	77.7	99.4	114.6	73.6	102.5	108.5	77.7	99.4	110.2	73.6	99.4
	Wall Finishes & Painting/Coating	96.0	51.3	68.4	96.0	45.6	64.9	96.0	39.4	61.1	96.0	47.3	66.0	96.0	50.2	67.7	96.0	51.3	68.4
	FINISHES	104.3	59.4	79.2	106.6	63.7	82.7	104.9	56.7	78.0	107.6	57.3	79.6	104.2	63.5	81.5	107.4	53.7	77.4
	DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	74.3	94.9	100.0	76.3	95.3	100.0	73.4	94.7	100.0	72.7	94.6	100.0	74.1	94.9	100.0	72.1	94.5
	FIRE SUPPRESSION, PLUMBING & HVAC	94.3	72.1	85.3	100.2	69.9	87.9	94.3	68.1	83.7	94.3	69.6	84.3	100.3	67.6	80.7	94.3	70.0	84.5
	ELECTRICAL, COMMUNICATIONS & UTIL.	97.5	66.0	81.2	101.9	73.5	87.3	101.7	71.9	86.3	97.5	68.8	82.7	102.7	71.9	86.8	97.5	64.0	80.2
	WEIGHTED AVERAGE	102.0	70.2	88.0	102.6	72.0	89.1	99.6	70.1	86.6	100.7	69.1	86.8	100.8	72.2	88.2	103.1	67.5	87.4
DIVISION		NEBRASKA																	
		ALLIANCE			COLUMBUS			GRAND ISLAND			HASTINGS			LINCOLN			MCCOOK		
		693			686			688			689			683 - 685			690		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		97.0	97.0		100.8	100.8		100.8	100.8		100.8	100.8		100.8	100.8		100.8	100.8	
34	SITE & INFRASTRUCTURE, DEMOLITION	99.4	97.5	98.1	98.7	90.9	93.3	103.4	92.1	95.6	102.3	91.3	94.7	91.0	92.1	91.7	103.2	91.1	94.9
	Concrete Forming & Accessories	88.2	56.3	60.5	96.3	59.1	64.0	95.9	76.0	78.6	98.8	74.3	77.4	100.2	60.3	65.5	93.7	56.6	61.5
	Concrete Reinforcing	113.6	47.6	80.3	104.7	46.4	75.3	104.1	75.5	89.7	104.1	47.1	75.4	95.6	74.9	85.2	106.1	75.0	90.4
	Casht-Place Concrete	108.2	58.5	88.6	110.2	55.4	88.6	116.7	69.8	98.2	116.7	64.1	96.0	87.2	72.3	81.3	116.7	58.2	93.7
	CONCRETE	117.8	56.1	87.7	104.1	56.6	81.0	108.7	74.4	92.0	108.8	66.4	88.2	91.3	68.3	80.1	108.8	61.8	85.9
	MASONRY	110.1	66.8	83.7	115.3	71.6	88.7	108.6	79.0	90.6	117.7	88.6	99.9	96.8	69.7	80.2	105.1	66.9	81.8
	METALS	100.6	65.3	88.9	92.7	74.6	86.8	94.5	86.3	91.8	95.2	76.2	88.9	99.6	85.3	94.9	95.5	84.2	91.7
	WOOD, PLASTICS & COMPOSITES	85.2	55.5	68.0	96.4	60.3	75.6	95.8	76.8	84.8	99.3	76.8	86.3	98.5	55.8	73.8	93.9	55.5	71.7
	THERMAL & MOISTURE PROTECTION	104.5	67.8	89.6	98.3	64.8	84.7	98.4	75.3	89.0	98.5	86.7	93.7	97.9	70.6	86.8	98.4	65.0	84.8
	OPENINGS	89.9	51.7	80.3	89.8	56.2	81.4	89.8	72.7	85.5	89.8	65.2	83.6	95.3	57.3	85.7	89.9	58.7	82.0
	Plaster & Gypsum Board	91.3	54.1	64.7	100.4	59.0	70.8	99.9	76.0	82.8	101.7	76.0	83.4	101.6	54.4	67.9	99.9	54.1	67.2
	Ceilings & Acoustic Treatment	99.2	54.1	69.4	94.9	59.0	71.2	94.9	76.0	82.4	94.9	76.0	82.4	97.6	54.4	69.0	94.9	54.1	67.9
	Flooring	103.9	86.0	98.6	102.6	105.1	103.3	102.4	112.3	105.3	103.8	105.1	104.2	104.0	87.5	99.2	101.5	86.0	96.9
	Wall Finishes & Painting/Coating	173.8	57.7	102.2	96.0	67.2	78.2	96.0	71.3	80.7	96.0	67.2	78.2	96.0	82.1	87.4	96.0	50.3	67.8
	FINISHES	103.3	61.1	79.7	100.1	67.4	81.8	100.3	81.4	89.8	100.9	78.6	88.5	100.9	66.7	81.9	100.0	60.2	77.8
	DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	68.0	93.6	100.0	77.2	95.5	100.0	82.6	96.5	100.0	81.2	96.3	100.0	80.2	96.1	100.0	67.3	93.5
	FIRE SUPPRESSION, PLUMBING & HVAC	94.2	59.4	80.1	94.0	72.3	85.2	99.9	78.2	91.1	94.0	75.4	86.5	99.8	78.2	91.1	94.0	72.8	85.4
	ELECTRICAL, COMMUNICATIONS & UTIL.	92.7	73.7	82.9	92.3	81.9	86.9	91.0	67.3	78.8	90.4	88.8	89.6	99.8	67.3	83.0	94.8	73.7	83.9
	WEIGHTED AVERAGE	99.7	65.8	84.8	96.8	71.7	85.7	98.7	78.4	89.8	97.8	79.3	89.6	98.0	73.6	87.2	97.6	70.7	85.7
DIVISION		NEBRASKA																	
		NORFOLK			NORTH PLATTE			OMAHA			VALENTINE			CARSON CITY			ELKO		
		687			691			680 - 681			692			897			898		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		92.2	92.2		100.8	100.8		92.2	92.2		95.1	95.1		99.3	99.3		99.3	99.3	
34	SITE & INFRASTRUCTURE, DEMOLITION	81.1	90.5	87.6	104.3	91.3	95.3	81.5	91.1	88.1	86.2	95.0	92.3	69.7	101.3	91.5	56.0	101.0	87.0
	Concrete Forming & Accessories	83.1	73.4	74.7	95.8	74.1	76.9	91.5	73.1	75.5	84.3	55.9	59.6	101.5	97.6	98.1	108.0	84.0	87.1
	Concrete Reinforcing	104.8	49.1	76.7	105.5	76.1	90.7	100.1	75.5	87.7	106.1	46.1	75.9	105.0	117.5	111.3	106.7	91.8	99.2
	Casht-Place Concrete	111.4	63.3	92.4	116.7	65.5	96.5	93.6	78.7	87.7	103.2	55.9	84.6	94.6	87.8	91.9	95.4	83.5	90.7
	CONCRETE	103.0	65.7	84.9	108.9	72.2	91.0	93.9	75.7	85.0	105.5	54.9	80.8	100.1	97.9	99.0	97.9	85.5	91.9
	MASONRY	122.3	69.5	90.1	92.9	88.6	90.3	102.3	79.9	88.6	105.4	67.0	81.9	116.9	76.6	92.3	119.2	69.9	89.1
	METALS	96.0	68.0	86.8	94.7	86.2	91.9	98.9	78.6	92.2	106.5	66.3	93.3	94.1	103.2	97.1	93.2	90.7	92.4
	WOOD, PLASTICS & COMPOSITES	80.0	76.3	77.9	95.7	76.8	84.8	89.6	72.5	79.8	79.7	55.0	65.5	87.7	100.4	95.1	96.7	84.4	89.6
	THERMAL & MOISTURE PROTECTION	97.9	73.7	88.1	98.4	80.6	91.2	94.1	80.5	88.6	98.8	67.6	86.1	99.6	87.0	94.5	100.9	75.9	90.7
	OPENINGS	91.3	65.7	84.9	89.1	72.0	84.8	98.0	72.4	91.6	91.4	52.9	81.7	97.0	112.6	100.9	99.8	82.2	95.4
	Plaster & Gypsum Board	100.7	76.0	83.1	99.9	76.0	82.8	104.9	72.1	81.5	102.6	54.1	67.9	90.4	100.3	97.5	94.5	83.8	86.9
	Ceilings & Acoustic Treatment	109.8	76.0	87.5	94.9	76.0	82.4	111.6	72.1	85.5	113.1	54.1	74.1	109.7	100.3	103.5	112.4	83.8	93.5
	Flooring	130.7	105.1	123.2	102.4	105.1	103.2	125.4	85.8	120.8	133.2	83.6	118.6	101.1	82.0	95.5	106.6	53.5	91.0
	Wall Finishes & Painting/Coating	172.0	67.2	107.3	96.0	67.2	78.2	172.0	68.9	108.4	172.0	69.6	108.8	99.8	83.3	89.6	98.8	83.3	89.2
	FINISHES	121.5	78.6	97.6	100.3	78.6	88.2	123.9	74.7	96.5	123.8	61.5	89.0	100.8	93.4	96.7	101.9	78.3	88.7
	DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	80.0	96.0	100.0	70.8	94.2	100.0	81.0	96.2	100.0	65.2	93.1	100.0	97.1	99.4	100.0	67.8	93.6
	FIRE SUPPRESSION, PLUMBING & HVAC	93.8	75.3	86.3	99.9	73.7	89.3	99.7	78.0	90.9	93.7	57.5	79.0	99.9	84.2	93.5	97.2	83.8	91.8
	ELECTRICAL, COMMUNICATIONS & UTIL.	91.2	82.5	86.7	93.0	81.9	87.3	99.2	82.8	90.8	89.9	62.0	91.0	91.1	98.5	94.9	93.9	98.4	96.3
	WEIGHTED AVERAGE	98.5	75.1	88.2	98.1	79.4	89.9	100.0	79.2	90.8	99.7	67.6	85.6	97.8	93.5	95.9	97		

City Cost Indexes

DIVISION	NEVADA									NEW HAMPSHIRE								
	ELY			LAS VEGAS			RENO			CHARLESTON			CLAREMONT			CONCORD		
	893			889 - 891			894 - 895			036			037			032 - 033		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT																	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																	
0310	Concrete Forming & Accessories																	
0320	Concrete Reinforcing																	
0330	Cast-in-Place Concrete																	
03	CONCRETE																	
04	MASONRY																	
05	METALS																	
06	WOOD, PLASTICS & COMPOSITES																	
07	THERMAL & MOISTURE PROTECTION																	
08	OPENINGS																	
0920	Plaster & Gypsum Board																	
0950, 0980	Ceilings & Acoustic Treatment																	
0960	Flooring																	
0970, 0990	Wall Finishes & Painting/Coating																	
09	FINISHES																	
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																	
MF2010	WEIGHTED AVERAGE																	

DIVISION	NEW HAMPSHIRE												NEW JERSEY					
	KEENE			LITTLETON			MANCHESTER			NASHUA			PORTSMOUTH			ATLANTIC CITY		
	034			035			031			030			038			062-064		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	
015433	CONTRACTOR EQUIPMENT																	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																	
0310	Concrete Forming & Accessories																	
0320	Concrete Reinforcing																	
0330	Cast-in-Place Concrete																	
03	CONCRETE																	
04	MASONRY																	
05	METALS																	
06	WOOD, PLASTICS & COMPOSITES																	
07	THERMAL & MOISTURE PROTECTION																	
08	OPENINGS																	
0920	Plaster & Gypsum Board																	
0950, 0980	Ceilings & Acoustic Treatment																	
0960	Flooring																	
0970, 0990	Wall Finishes & Painting/Coating																	
09	FINISHES																	
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																	
MF2010	WEIGHTED AVERAGE																	

DIVISION	NEW JERSEY												LONG BEACH					
	CAMDEN			DOVER			ELIZABETH			HACKENSACK			JERSEY CITY					
	081			078			072			076			073					
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	
015433	CONTRACTOR EQUIPMENT																	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																	
0310	Concrete Forming & Accessories																	
0320	Concrete Reinforcing																	
0330	Cast-in-Place Concrete																	
03	CONCRETE																	
04	MASONRY																	
05	METALS																	
06	WOOD, PLASTICS & COMPOSITES																	
07	THERMAL & MOISTURE PROTECTION																	
08	OPENINGS																	
0920	Plaster & Gypsum Board																	
0950, 0980	Ceilings & Acoustic Treatment																	
0960	Flooring																	
0970, 0990	Wall Finishes & Painting/Coating																	
09	FINISHES																	
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																	
MF2010	WEIGHTED AVERAGE																	

Cost Indexes

DIVISION	NEW JERSEY																	
	NEW BRUNSWICK			NEWARK			PATERSON			POINT PLEASANT			SUMMIT			TRENTON		
	088 - 089			070 - 071			074 - 075			087			079			085 - 086		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	98.3	98.3		100.4	100.4		100.4	100.4		98.3	98.3		100.4	100.4		98.3	98.3	
SITE & INFRASTRUCTURE, DEMOLITION	114.2	104.4	107.5	115.2	104.1	107.5	113.0	104.6	107.2	115.7	104.4	107.9	113.1	104.1	106.9	96.1	104.4	101.8
Concrete Forming & Accessories	102.1	124.9	121.9	96.0	125.0	121.2	98.1	125.0	121.5	97.5	124.4	120.9	98.8	125.0	121.6	96.7	124.6	121.0
Concrete Reinforcing	79.8	123.6	101.9	103.6	123.6	113.7	103.6	123.6	113.7	79.8	123.5	101.8	79.8	123.6	101.9	103.6	119.0	111.3
Cast-in-Place Concrete	105.3	130.2	115.1	109.9	131.0	118.2	105.4	131.0	115.5	105.3	129.8	115.0	88.0	131.0	104.9	101.5	129.9	112.7
CONCRETE	115.3	125.5	120.3	111.4	125.9	118.5	109.3	125.9	117.4	115.0	125.1	119.9	97.4	125.9	111.3	107.3	124.4	115.6
MASONRY	95.5	128.0	115.3	98.2	128.1	116.4	93.5	128.1	114.6	86.9	127.6	111.7	95.2	128.1	115.3	85.8	127.6	111.3
METALS	92.8	109.5	98.3	97.9	111.9	102.5	93.0	111.9	99.3	92.8	109.2	98.2	92.7	111.9	99.1	93.0	107.2	97.7
WOOD, PLASTICS & COMPOSITES	103.6	123.9	115.3	98.2	123.9	113.1	101.3	123.9	114.4	97.2	123.9	112.6	102.4	123.9	114.8	96.6	123.9	112.4
THERMAL & MOISTURE PROTECTION	101.4	125.2	111.1	101.3	126.4	111.5	101.6	123.9	110.7	101.4	125.0	111.0	102.0	126.4	111.9	97.2	124.6	108.3
OPENINGS	94.5	123.6	101.8	108.3	123.6	112.1	108.3	123.6	112.1	96.5	124.5	103.6	110.6	123.6	113.9	103.0	122.1	107.8
Plaster & Gypsum Board	99.7	124.0	117.1	96.2	124.0	116.1	98.7	124.0	116.8	95.2	124.0	115.8	97.4	124.0	116.4	96.5	124.0	116.1
Ceilings & Acoustic Treatment	92.7	124.0	113.4	98.4	124.0	115.3	102.0	124.0	116.5	92.7	124.0	113.4	92.7	124.0	113.4	99.3	124.0	115.6
Flooring	95.9	164.3	116.0	94.7	164.3	115.1	94.5	164.3	114.9	93.4	133.1	105.1	94.8	164.3	115.2	94.8	164.3	115.2
Wall Finishes & Painting/Coating	90.1	123.1	110.5	90.0	123.1	110.4	90.0	123.1	110.4	90.1	121.1	109.2	90.0	123.1	110.4	90.1	121.1	109.2
FINISHES	100.5	131.5	117.8	99.0	131.5	117.2	100.4	131.5	117.8	99.3	125.9	114.1	98.9	131.5	117.1	98.8	131.1	116.9
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	110.2	102.0	100.0	110.3	102.1	100.0	110.4	102.1	100.0	107.1	101.4	100.0	110.3	102.1	100.0	110.3	102.1
FIRE SUPPRESSION, PLUMBING & HVAC	99.6	125.0	109.9	100.1	126.1	110.6	100.0	125.7	110.4	99.6	124.5	109.7	99.6	126.1	110.3	100.2	124.7	110.1
ELECTRICAL, COMMUNICATIONS & UTIL.	98.0	138.0	118.7	105.5	136.9	121.7	103.8	137.0	120.9	97.2	132.7	115.5	99.3	137.0	118.8	105.1	137.6	121.9
WEIGHTED AVERAGE	100.1	124.3	110.8	102.7	124.6	112.4	101.4	124.5	111.6	99.7	122.5	109.7	99.6	124.7	110.7	99.6	123.6	110.2
DIVISION	NEW MEXICO																	
	VINELAND			ALBUQUERQUE			CARRIZOZO			CLOVIS			FARMINGTON			GALLUP		
	080,083			870 - 872			883			881			874			873		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	98.7	98.7		111.1	111.1		111.1	111.1		111.1	111.1		111.1	111.1		111.1	111.1	
SITE & INFRASTRUCTURE, DEMOLITION	104.1	103.5	103.7	78.9	106.9	98.2	100.5	106.9	104.9	87.9	106.9	101.0	85.1	106.9	100.1	93.6	106.9	102.8
Concrete Forming & Accessories	95.3	124.3	120.5	99.4	65.8	70.2	99.4	65.8	70.2	99.4	65.6	70.0	99.4	65.8	70.2	99.4	65.8	70.2
Concrete Reinforcing	79.0	114.8	97.0	100.4	71.1	85.6	107.7	71.1	89.2	108.9	71.0	89.8	109.7	71.1	90.2	105.0	71.1	87.9
Cast-in-Place Concrete	91.9	130.0	106.9	101.4	73.4	90.4	94.3	73.4	86.1	94.3	73.4	86.0	102.3	73.4	90.9	96.3	73.4	87.3
CONCRETE	102.3	123.5	112.6	102.6	70.5	87.0	116.2	70.5	93.9	105.5	70.4	88.4	106.2	70.5	88.8	111.7	70.5	91.6
MASONRY	85.9	127.6	111.3	107.7	62.9	80.4	104.4	62.9	79.1	104.5	62.9	79.1	114.7	62.9	83.1	104.5	62.9	79.2
METALS	92.7	104.7	96.6	100.4	88.2	96.4	97.3	88.2	94.3	96.9	88.1	94.0	98.2	88.2	94.9	97.3	88.2	94.3
WOOD, PLASTICS & COMPOSITES	94.4	123.9	111.5	87.9	66.1	73.3	88.0	66.1	75.4	88.0	66.1	75.4	88.0	66.1	75.4	88.0	66.1	75.4
THERMAL & MOISTURE PROTECTION	101.0	124.8	110.7	100.6	73.4	89.5	102.2	73.4	90.5	101.0	73.4	89.8	100.9	73.4	89.7	101.9	73.4	90.3
OPENINGS	96.0	121.6	102.5	97.1	68.8	90.0	95.8	68.8	89.0	96.0	68.8	89.2	100.1	68.8	92.2	100.1	68.8	92.2
Plaster & Gypsum Board	93.3	124.0	115.2	89.3	64.7	71.7	81.2	64.7	69.4	81.2	64.7	69.4	81.2	64.7	69.4	81.2	64.7	69.4
Ceilings & Acoustic Treatment	92.7	124.0	113.4	112.0	64.7	80.7	108.8	64.7	79.7	108.8	64.7	79.7	108.8	64.7	79.7	108.8	64.7	79.7
Flooring	92.6	133.1	104.4	98.4	69.1	89.8	100.7	69.1	91.4	100.7	69.1	91.4	100.7	69.1	91.4	100.7	69.1	91.4
Wall Finishes & Painting/Coating	90.1	121.1	109.2	103.7	51.7	71.6	98.8	51.7	69.8	98.8	51.7	69.8	98.8	51.7	69.8	98.8	51.7	69.8
FINISHES	97.7	125.9	113.5	100.3	64.6	80.4	101.2	64.6	80.8	99.7	64.6	80.2	99.3	64.6	80.0	100.6	64.6	80.5
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	110.5	102.1	100.0	80.2	96.1	100.0	80.2	96.1	100.0	80.2	96.1	100.0	80.2	96.1	100.0	80.2	96.1
FIRE SUPPRESSION, PLUMBING & HVAC	99.6	124.8	109.8	100.1	68.2	87.2	96.6	68.2	85.1	96.6	67.8	84.9	100.0	68.2	87.1	96.4	68.2	85.1
ELECTRICAL, COMMUNICATIONS & UTIL.	97.2	136.9	117.7	89.5	71.1	80.0	89.5	71.1	80.0	87.2	71.1	78.9	87.8	71.1	79.2	87.1	71.1	78.8
WEIGHTED AVERAGE	97.6	122.4	108.6	98.7	73.6	87.7	99.4	73.6	88.1	97.4	73.5	86.9	99.4	73.6	88.0	98.8	73.6	87.7
DIVISION	NEW MEXICO																	
	LAS CRUCES			LAS VEGAS			ROSWELL			SANTA FE			SOCORRO			TRUTH/CONSEQUENCES		
	880			877			882			875			878			879		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	87.3	87.3		111.1	111.1		111.1	111.1		111.1	111.1		111.1	111.1		87.3	87.3	
SITE & INFRASTRUCTURE, DEMOLITION	90.5	86.0	87.4	84.4	106.9	99.9	90.0	106.9	101.7	83.4	106.9	99.6	81.0	106.9	98.9	101.7	86.0	90.9
Concrete Forming & Accessories	96.3	64.6	68.7	99.4	65.8	70.2	99.4	65.8	70.2	98.6	65.8	70.1	99.4	65.8	70.2	96.3	64.6	68.7
Concrete Reinforcing	103.6	70.9	87.1	106.7	71.1	88.8	108.9	71.1	89.8	107.7	71.1	89.2	108.9	71.1	89.8	102.4	70.9	86.5
Cast-in-Place Concrete	89.0	65.8	79.9	99.5	73.4	89.2	94.3	73.4	86.1	103.6	73.4	91.7	95.8	73.4	88.0	106.9	65.8	90.7
CONCRETE	85.1	67.0	76.3	103.5	70.5	87.4	106.2	70.5	88.8	104.8	70.5	88.1	102.3	70.5	86.8	96.9	67.0	82.4
MASONRY	100.5	62.6	77.4	104.8	62.9	79.3	115.3	62.9	83.3	108.8	62.9	80.8	104.7	62.9	79.2	102.1	62.6	78.0
METALS	98.1	81.7	92.7	97.0	88.2	94.1	98.2	88.2	94.9	98.2	88.2	94.9	97.3	88.2	94.3	96.9	81.7	91.9
WOOD, PLASTICS & COMPOSITES	79.3	65.0	71.0	88.0	66.1	75.4	88.0	66.1	75.4	87.5	66.1	75.2	88.0	66.1	75.4	79.3	65.0	71.0
THERMAL & MOISTURE PROTECTION	91.1	68.7	79.6	100.5	73.4	89.5	101.1	73.4	89.8	100.2	73.4	89.3	100.4	73.4	89.4	87.6	68.7	79.9
OPENINGS	90.1	68.2	84.6	96.0	68.8	89.2	95.8	68.8	89.0	96.0	68.8	89.1	95.8	68.8	89.0	90.0	68.2	84.5
Plaster & Gypsum Board	83.3	64.7	70.0	81.2	64.7	69.4	81.2	64.7	69.4	89.2	64.7	71.7	81.2	64.7	69.4	83.3	64.7	70.0
Ceilings & Acoustic Treatment	97.8	64.7	75.9	108.8	64.7	79.7	108.8	64.7	79.7	109.7	64.7	80.0	108.8	64.7	79.7	97.8	64.7	75.9
Flooring	133.3	69.1	114.4	100.7	69.1	91.4	100.7	69.1	91.4	100.7	69.1	91.4	100.7	69.1	91.4	133.3	69.1	114.4

City Cost Indexes

DIVISION	NEW MEXICO									NEW YORK											
	TUCUMCARI			ALBANY			BINGHAMTON			BRONX			BROOKLYN			BUFFALO					
	884			120 - 122			137 - 139			104			112			140 - 142					
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL			
015433	CONTRACTOR EQUIPMENT																				
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																				
0310	Concrete Forming & Accessories																				
0320	Concrete Reinforcing																				
0330	Cast-in-Place Concrete																				
03	CONCRETE																				
04	MASONRY																				
05	METALS																				
06	WOOD, PLASTICS & COMPOSITES																				
07	THERMAL & MOISTURE PROTECTION																				
08	OPENINGS																				
0920	Plaster & Gypsum Board																				
0950, 0980	Ceilings & Acoustic Treatment																				
0960	Flooring																				
0970, 0990	Wall Finishes & Painting/Coating																				
09	FINISHES																				
COVERS	DVS. 10 - 14, 25, 28, 41, 43, 44, 46																				
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																				
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																				
MF2010	WEIGHTED AVERAGE																				

DIVISION	NEW YORK																	
	ELMHURST			FAR ROCKAWAY			FLUSHING			GLENS FALLS			HICKSVILLE			JAMAICA		
	148 - 149			116			113			128			115, 117, 118			114		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT																	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																	
0310	Concrete Forming & Accessories																	
0320	Concrete Reinforcing																	
0330	Cast-in-Place Concrete																	
03	CONCRETE																	
04	MASONRY																	
05	METALS																	
06	WOOD, PLASTICS & COMPOSITES																	
07	THERMAL & MOISTURE PROTECTION																	
08	OPENINGS																	
0920	Plaster & Gypsum Board																	
0950, 0980	Ceilings & Acoustic Treatment																	
0960	Flooring																	
0970, 0990	Wall Finishes & Painting/Coating																	
09	FINISHES																	
COVERS	DVS. 10 - 14, 25, 28, 41, 43, 44, 46																	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																	
MF2010	WEIGHTED AVERAGE																	

DIVISION	NEW YORK																	
	JAMESTOWN			KINGSTON			LONG ISLAND CITY			MONTICELLO			MOUNT VERNON			NEW ROCHELLE		
	147			124			111			127			105			108		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT																	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																	
0310	Concrete Forming & Accessories																	
0320	Concrete Reinforcing																	
0330	Cast-in-Place Concrete																	
03	CONCRETE																	
04	MASONRY																	
05	METALS																	
06	WOOD, PLASTICS & COMPOSITES																	
07	THERMAL & MOISTURE PROTECTION																	
08	OPENINGS																	
0920	Plaster & Gypsum Board																	
0950, 0980	Ceilings & Acoustic Treatment																	
0960	Flooring																	
0970, 0990	Wall Finishes & Painting/Coating																	
09	FINISHES																	
COVERS	DVS. 10 - 14, 25, 28, 41, 43, 44, 46																	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																	
MF2010	WEIGHTED AVERAGE																	

Cost Indexes

DIVISION	NEW YORK																				
	NEW YORK			NIAGARA FALLS			PLATTSBURGH			POUGHKEEPSIE			QUEENS			RIVERHEAD					
	100-102			143			129			125-126			110			119					
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL			
CONTRACTOR EQUIPMENT	114.3	114.3		93.5	93.5		99.5	99.5		114.5	114.5		114.5	114.5		114.5	114.5				
34 SITE & INFRASTRUCTURE, DEMOLITION	123.0	125.1	124.5	96.5	94.7	95.3	85.4	102.9	97.5	115.3	124.3	121.5	115.7	128.0	124.2	113.2	126.8	122.6			
Concrete Forming & Accessories	106.0	184.9	174.6	87.4	117.3	113.5	91.0	86.4	87.0	88.4	153.4	144.9	92.3	176.2	165.3	96.5	146.8	140.3			
Concrete Reinforcing	101.5	179.8	141.0	102.5	102.3	102.4	102.6	88.2	95.4	98.2	134.9	116.7	100.5	187.6	144.4	100.6	176.6	138.9			
Cas-in-Place Concrete	100.4	180.1	131.8	103.4	122.6	111.0	91.6	95.4	93.1	97.9	128.2	109.9	95.4	162.5	121.8	93.7	154.7	117.8			
CONCRETE	106.4	180.1	142.3	105.7	115.4	110.4	100.5	89.5	95.2	105.9	139.8	122.4	103.6	171.5	136.7	101.1	153.7	126.7			
MASONRY	103.9	178.2	149.2	119.6	123.4	121.9	89.5	90.7	90.2	102.2	129.4	118.8	108.3	175.0	149.0	117.2	162.8	145.1			
METALS	119.0	143.1	126.9	96.9	93.5	95.8	101.0	83.5	95.2	105.2	116.8	109.0	105.2	141.8	117.3	107.1	135.4	116.5			
WOOD, PLASTICS & COMPOSITES	107.5	187.8	153.9	82.4	115.3	101.4	90.5	85.1	87.4	84.9	164.5	130.9	88.7	177.9	140.3	93.7	145.9	123.8			
THERMAL & MOISTURE PROTECTION	104.1	166.8	129.6	101.3	110.7	105.1	101.1	88.2	95.9	107.4	140.3	120.8	105.4	163.1	128.9	106.0	150.5	124.1			
OPENINGS	90.2	178.0	112.3	91.5	103.2	94.4	96.7	81.2	92.8	92.3	151.4	107.2	87.1	172.1	108.5	87.1	152.2	103.5			
Plaster & Gypsum Board	112.0	190.1	167.8	98.0	115.5	110.5	117.0	83.9	93.4	94.2	166.5	145.9	97.9	180.4	156.8	99.6	147.3	133.6			
Ceilings & Acoustic Treatment	102.5	190.1	160.4	98.6	115.5	109.8	104.9	83.9	91.0	76.4	166.5	135.9	82.7	180.4	147.2	82.6	147.3	125.3			
Flooring	100.3	177.0	122.8	94.4	117.0	101.0	107.8	103.9	106.7	97.7	145.8	111.8	104.4	177.0	125.7	105.5	149.4	118.4			
Wall Finishes & Painting/Coating	106.1	155.0	136.2	98.1	113.1	107.4	116.5	78.8	93.2	118.7	106.3	111.0	121.2	152.7	140.6	121.2	152.7	140.6			
FINISHES	107.5	181.6	148.8	96.8	117.8	108.5	101.2	88.9	94.3	103.9	149.2	129.2	107.6	174.7	145.0	107.8	147.2	129.8			
DIVS. 10-14, 25, 28, 41, 43, 44, 46	100.0	137.9	107.5	100.0	104.2	100.8	100.0	51.4	90.3	100.0	113.5	102.7	100.0	133.5	106.7	100.0	123.8	104.7			
FIRE SUPPRESSION, PLUMBING & HVAC	100.0	168.4	127.7	94.1	99.4	96.2	94.2	84.6	90.3	94.2	117.2	103.5	99.7	166.7	126.9	99.9	149.8	120.1			
ELECTRICAL, COMMUNICATIONS & UTIL.	105.0	173.3	140.3	94.7	98.8	96.8	93.9	85.7	89.7	98.0	115.7	107.1	100.1	173.3	137.9	101.7	141.0	122.0			
WEIGHTED AVERAGE	104.8	166.9	132.2	97.9	106.1	101.5	96.9	87.0	92.6	100.1	128.4	112.6	101.4	163.8	128.9	102.1	146.1	121.5			
DIVISION	NEW YORK																				
	ROCHESTER			SCHENECTADY			STATEN ISLAND			SUFFERN			SYRACUSE			UTICA					
	144-146			123			103			109			130-132			133-135					
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL			
CONTRACTOR EQUIPMENT	115.6	115.6		113.6	113.6		113.9	113.9		113.9	113.9		113.6	113.6		113.6	113.6				
34 SITE & INFRASTRUCTURE, DEMOLITION	74.5	107.6	97.3	71.9	106.9	96.0	127.1	124.5	125.3	117.7	120.3	119.5	92.4	106.6	102.2	70.2	104.2	93.7			
Concrete Forming & Accessories	103.5	91.7	93.3	102.0	95.1	96.0	92.1	176.5	165.6	100.6	126.4	123.1	101.0	88.0	89.7	102.5	80.6	83.5			
Concrete Reinforcing	103.4	89.2	96.2	96.9	91.8	94.3	95.9	179.8	138.2	94.7	135.0	115.0	98.3	95.5	96.9	98.3	87.1	92.6			
Cas-in-Place Concrete	96.8	96.6	96.7	90.4	101.4	94.7	99.7	164.2	125.1	96.7	126.8	108.5	91.3	95.8	93.1	83.6	87.5	85.1			
CONCRETE	112.7	93.9	103.5	100.8	97.4	99.2	107.4	171.0	138.4	102.1	127.4	114.4	99.7	93.0	96.5	97.7	85.3	91.7			
MASONRY	103.3	96.3	99.0	91.9	99.8	96.7	106.6	175.1	148.4	99.0	123.0	113.6	98.9	101.8	100.6	90.6	88.2	89.1			
METALS	98.0	104.2	100.1	100.4	104.0	101.6	102.8	142.9	116.0	102.8	118.0	107.8	100.3	105.0	101.8	98.3	101.6	99.4			
WOOD, PLASTICS & COMPOSITES	96.6	91.7	93.8	102.5	94.3	97.8	91.7	178.3	141.7	102.8	132.6	120.0	102.5	85.6	92.7	102.5	82.4	90.9			
THERMAL & MOISTURE PROTECTION	96.7	93.9	95.5	89.1	93.2	90.8	104.4	164.3	128.8	104.9	134.4	116.9	95.9	96.2	98.2	88.9	90.0	89.4			
OPENINGS	94.2	86.1	92.2	94.3	87.7	92.6	85.0	172.8	107.1	85.0	136.9	98.1	92.3	79.9	89.2	94.3	78.6	90.4			
Plaster & Gypsum Board	114.8	91.4	98.1	106.3	93.9	97.5	98.6	180.4	157.0	102.6	133.3	124.5	106.3	84.8	91.0	106.3	81.6	88.7			
Ceilings & Acoustic Treatment	106.9	91.4	96.7	97.1	93.9	95.0	83.5	180.4	147.5	81.7	133.3	115.7	97.1	84.8	89.0	97.1	81.6	86.9			
Flooring	90.3	103.0	94.1	91.0	103.9	94.8	95.2	177.0	119.2	94.3	149.4	110.4	93.1	95.0	93.7	91.0	90.4	90.8			
Wall Finishes & Painting/Coating	97.9	95.5	96.4	89.3	78.4	82.6	106.1	152.7	134.8	104.1	114.4	110.5	96.6	98.5	97.8	89.3	96.5	95.0			
FINISHES	102.9	94.4	98.2	96.0	95.1	95.5	100.8	175.0	142.2	99.6	126.9	114.9	97.9	90.0	93.5	96.0	84.2	89.4			
DIVS. 10-14, 25, 28, 41, 43, 44, 46	100.0	94.1	98.8	100.0	93.3	98.7	100.0	134.3	106.8	100.0	115.6	103.1	100.0	95.7	99.2	100.0	87.2	97.4			
FIRE SUPPRESSION, PLUMBING & HVAC	100.0	87.1	94.8	100.2	91.5	96.7	100.1	166.8	127.1	94.3	112.0	101.4	100.2	88.3	95.3	100.2	78.4	91.3			
ELECTRICAL, COMMUNICATIONS & UTIL.	99.2	89.6	94.2	100.9	91.6	96.1	96.9	173.3	136.3	103.2	123.8	113.8	100.9	94.3	97.5	99.0	94.3	96.6			
WEIGHTED AVERAGE	100.0	94.0	97.3	97.8	96.1	97.0	100.8	163.6	128.5	98.7	122.0	109.0	98.9	94.5	97.0	96.8	88.2	93.0			
DIVISION	NORTH CAROLINA																				
	WATERTOWN			WHITE PLAINS			YONKERS			ASHEVILLE			CHARLOTTE			DURHAM					
	136			106			107			287-288			281-282			277					
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL			
CONTRACTOR EQUIPMENT	113.6	113.6		113.9	113.9		113.9	113.9		94.7	94.7		94.7	94.7		99.9	99.9				
34 SITE & INFRASTRUCTURE, DEMOLITION	78.2	106.5	97.7	113.8	119.2	117.5	122.5	119.1	120.1	108.4	75.5	85.7	109.7	75.6	86.2	108.6	84.0	91.6			
Concrete Forming & Accessories	88.2	90.3	90.1	105.3	129.3	126.2	105.7	129.3	126.2	92.5	37.4	44.6	96.6	39.2	46.7	94.8	38.0	45.4			
Concrete Reinforcing	98.9	95.6	97.2	94.7	178.4	136.9	98.5	178.4	138.8	93.6	41.0	67.1	94.0	38.3	65.9	95.2	47.9	71.4			
Cas-in-Place Concrete	97.3	94.7	96.3	88.5	129.7	104.8	99.0	129.8	111.1	118.0	45.0	89.3	124.5	47.0	93.9	119.9	45.3	90.5			
CONCRETE	110.4	93.6	102.2	95.6	137.6	116.1	105.3	137.6	121.1	109.0	42.7	76.7	111.9	43.6	78.6	109.7	44.3	77.8			
MASONRY	91.6	101.4	97.6	98.5	127.3	116.1	103.4	127.3	118.0	87.1	38.2	57.3	93.2	41.8	61.8	92.4	34.4	57.2			
METALS	98.3	105.0	100.5	104.3	132.6	113.7	114.4	132.6	120.4	87.2	72.4	82.3	91.2	71.6	84.7	100.4	75.5	92.2			
WOOD, PLASTICS & COMPOSITES	85.2	89.4	87.6	108.6	132.4	122.4	108.4	132.4	122.3	94.5	36.9	61.3	99.7	39.0	64.6	96.9	38.3	63.1			
THERMAL & MOISTURE PROTECTION	89.2	96.3	92.1	104.8	137.9	118.2	105.1	137.9	118.4	99.9	41.2	76.1	97.3	42.7	71.1	100.7	43.2	77.3			
OPENINGS	94.3	85.7	92.1	85.1	145.6	100.3	88.2	145.6	102.7	93.2	36.7	79.0	97.3	38.1	82.4	97.3	40.5	83.0			
Plaster & Gypsum Board	97.7	88.8	91.3	106.2	133.0	125.4	111.4	133.0	126.9	104.3	34.8	54.7	100.7	36.9	55.1	108.3	36.2	56.8			
Ceilings & Acoustic Treatment	97.1	88.8	91.6	81.7	133.0	115.6	100.7	133.0	122.1	93.7	34.8	54.8	96.4	36.9	57.1	97.3	36.2	57.0			
Flooring	83.8	91.2	85.9	96.3	172.3	118.6	95.9	172.3	118.3	103.7	43.6	86.1	106.7	43.8	88.2	107.3	43.6	88.6			
Wall Finishes & Painting/Coating	89.3	88.9	89.1	104.1	152.7	134.1	104.1	152.7	134.1	114.8	33.7	64.8	114.8	38.5	67.7	114.8	35.4	65.8			
FINISHES	93.7	90.1	91.7	100.1	139.1	121.8	105.6	139.1	124.3	100.8	37.9	65.7	101.5	39.8	67.1	103.2	38.4	67.0			
DIVS. 10-14, 25, 28, 41, 43, 44, 46	100.0	95.7	99.2	100.0	117.2	103.8	100.0	120.4	104.1	100.0	64.5	92.9	100.0	65.0	93.0	100.0	72.4	94.5			
FIRE SUPPRESSION, PLUMBING & HVAC	100.2	83.8	93.5	100.3	117.9	107.4	100.3	117.9	107.4	100.2	36.9	74.6	99.9	37.1	74.5	100.3	35.8	74.2			
ELECTRICAL, COMMUNICATIONS & UTIL.	100.9	91.7	96.2	95.2	157.5	127.4	103.3	157.5	131.3	96.6	36.6	65.7	97.2	47.6	71.6	97.5	46.3	71.1			
WEIGHTED AVERAGE	98.5	93.5	96.3	98.8	133.0	113.9	103.5	133.1	116.5	97.8	45.5	74.7	99.4	47.8	76.7	100.8	47.9	77.5			

City Cost Indexes

DIVISION	NORTH CAROLINA																	
	ELIZABETH CITY			FAYETTEVILLE			GASTONIA			GREENSBORO			HICKORY			KINGSTON		
	279			283			280			270,272 - 274			286			285		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT			103.9	103.9		99.9	99.9		94.7	94.7		99.9	99.9		99.9	99.9	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION			114.3	85.0	94.1	107.4	84.1	91.3	108.0	75.5	85.6	108.5	84.1	91.7	107.6	84.0	91.4
0310	Concrete Forming & Accessories			82.0	33.0	39.4	92.1	38.8	45.7	98.4	38.3	46.1	94.5	38.6	45.9	88.9	36.6	43.4
0320	Concrete Reinforcing			93.1	39.9	66.3	97.3	48.1	72.5	94.0	40.9	67.3	94.0	56.2	75.0	93.6	18.6	55.8
0330	Cast-in-Place Concrete			120.1	36.9	87.4	123.7	48.2	94.0	115.3	52.1	90.4	119.0	46.5	90.5	117.9	46.1	89.6
03	CONCRETE			109.9	37.7	74.7	111.4	45.7	79.4	107.4	45.5	77.2	109.0	46.6	78.6	108.7	38.6	74.6
04	MASONRY			105.0	25.7	56.6	90.6	39.1	59.2	91.7	36.1	57.8	90.5	35.0	56.6	76.8	39.3	53.9
05	METALS			89.2	71.9	83.5	104.3	75.6	94.9	88.1	72.4	82.9	94.5	78.6	89.2	87.3	66.1	80.3
06	WOOD, PLASTICS & COMPOSITES			81.9	34.2	54.3	93.5	38.3	61.6	102.4	38.3	65.3	96.6	38.3	62.9	89.3	36.7	58.9
07	THERMAL & MOISTURE PROTECTION			100.0	32.5	72.6	99.8	41.7	76.2	100.2	41.5	76.3	100.5	40.8	76.2	100.3	40.2	75.8
08	OPENINGS			94.2	32.1	78.5	93.3	40.5	80.0	97.3	38.2	82.4	97.3	42.8	83.6	93.3	29.8	77.3
0920	Plaster & Gypsum Board			101.8	31.3	51.4	109.0	36.2	57.0	110.4	36.2	57.4	110.4	36.2	57.4	104.3	34.6	54.5
0950, 0980	Ceilings & Acoustic Treatment			97.3	31.3	53.7	94.6	36.2	56.0	97.3	36.2	56.9	97.3	36.2	56.9	93.7	34.6	54.6
0960	Flooring			98.0	23.7	76.2	103.8	43.6	86.2	107.3	43.6	88.6	107.3	40.3	87.6	103.5	33.6	83.0
0970, 0990	Wall Finishes & Painting/Coating			114.8	43.6	70.9	114.8	33.7	64.8	114.8	38.7	67.9	114.8	32.8	64.2	114.8	32.8	64.2
09	FINISHES			100.1	32.2	62.2	101.5	38.7	66.5	103.3	39.1	67.5	103.4	38.1	67.0	101.0	35.3	64.3
COVERS	DWS. 10 - 14, 25, 28, 41, 43, 44, 46			100.0	72.8	94.6	100.0	73.1	94.7	100.0	64.5	92.9	100.0	64.7	93.0	100.0	64.5	92.9
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC			94.3	29.0	67.8	100.2	36.9	74.5	100.2	36.6	74.4	100.2	37.0	74.6	94.3	30.4	68.4
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.			97.1	29.0	62.0	95.6	50.5	72.3	96.1	34.0	64.1	96.4	36.8	65.7	94.2	30.8	61.5
MF2010	WEIGHTED AVERAGE			97.8	40.6	72.6	100.7	49.4	78.1	98.6	45.4	75.1	99.7	47.3	76.6	95.5	42.3	72.1

DIVISION	NORTH CAROLINA																		NORTH DAKOTA	
	MURPHY			RALEIGH			ROCKY MOUNT			WILMINGTON			WINSTON-SALEM			BISMARCK				
	289			275 - 276			278			284			271			585				
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.
015433	CONTRACTOR EQUIPMENT			94.7	94.7		99.9	99.9		99.9	99.9		94.7	94.7		99.9	99.9			
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION			110.1	75.3	86.1	109.1	84.1	91.9	112.0	84.2	92.8	109.5	75.7	86.2	108.8	84.0	91.7	100.1	97.4
0310	Concrete Forming & Accessories			99.0	23.9	33.7	94.9	39.5	46.7	87.7	31.6	38.9	93.7	44.1	50.5	95.8	37.7	45.2	99.8	47.3
0320	Concrete Reinforcing			93.2	17.9	55.2	94.0	48.1	70.9	93.1	26.3	59.5	94.3	46.4	70.2	94.0	38.0	65.8	110.0	95.8
0330	Cast-in-Place Concrete			122.0	35.2	87.8	127.6	51.5	97.6	117.5	38.5	86.4	117.5	48.0	90.1	122.0	44.0	91.3	101.1	48.3
03	CONCRETE			112.2	29.2	71.8	113.3	47.1	81.1	110.4	35.1	73.7	108.8	47.7	79.0	110.6	41.9	77.1	100.3	54.3
04	MASONRY			79.4	25.4	46.4	91.7	40.0	60.2	83.2	33.1	52.6	77.1	40.0	54.5	90.7	36.0	57.3	104.3	59.3
05	METALS			85.3	64.5	78.4	92.2	75.5	86.7	88.4	65.4	80.8	87.0	74.9	83.0	92.2	71.1	85.2	96.5	96.3
06	WOOD, PLASTICS & COMPOSITES			103.1	22.1	56.3	96.9	38.9	63.4	88.6	28.9	54.1	96.2	44.1	66.1	96.6	37.6	62.5	82.3	36.9
07	THERMAL & MOISTURE PROTECTION			100.1	30.6	71.9	99.5	42.0	76.1	100.5	31.8	72.6	99.9	46.1	78.0	100.5	40.5	76.1	107.4	52.6
08	OPENINGS			93.2	24.5	75.9	94.1	40.6	80.6	93.4	25.6	76.3	93.4	43.9	80.9	97.3	37.5	82.2	98.0	40.9
0920	Plaster & Gypsum Board			109.3	19.5	45.1	100.7	36.9	55.1	103.7	26.5	48.6	106.0	42.2	60.4	110.4	35.5	56.9	98.3	35.3
0950, 0980	Ceilings & Acoustic Treatment			93.7	19.5	44.7	96.4	36.9	57.1	94.6	26.5	49.6	94.6	42.2	60.0	97.3	35.5	56.5	144.8	25.2
0960	Flooring			107.6	24.6	83.3	107.3	43.6	88.6	102.0	22.3	78.6	104.5	45.5	87.2	107.3	43.6	88.6	115.3	75.9
0970, 0990	Wall Finishes & Painting/Coating			114.8	18.1	55.1	114.8	37.2	66.9	114.8	40.0	68.6	114.8	40.2	68.8	114.8	34.4	65.2	96.0	31.0
09	FINISHES			102.8	22.7	58.1	101.8	39.7	67.2	101.1	30.3	61.6	101.4	43.9	69.3	103.4	38.2	67.1	114.9	45.3
COVERS	DWS. 10 - 14, 25, 28, 41, 43, 44, 46			100.0	61.8	92.4	100.0	73.5	94.7	100.0	72.9	94.6	100.0	74.7	96.0	100.0	64.4	92.9	100.0	97.3
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC			94.3	18.5	63.6	100.0	35.3	73.8	94.3	35.7	70.6	100.2	38.3	75.1	100.2	35.7	74.1	100.3	90.7
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.			97.5	25.7	60.5	100.6	36.5	67.5	99.1	38.8	68.0	96.8	36.9	65.9	96.4	40.1	67.4	98.1	71.7
MF2010	WEIGHTED AVERAGE			96.4	33.2	68.5	99.8	47.6	76.8	96.8	42.5	72.9	97.4	48.5	75.8	99.5	46.0	75.9	100.7	64.4

DIVISION	NORTH DAKOTA																		MINOT	
	DEVILS LAKE			DICKINSON			FARGO			GRAND FORKS			JAMESTOWN							
	583			586			580 - 581			582			584						587	
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.
015433	CONTRACTOR EQUIPMENT			98.7	98.7		98.7	98.7		98.7	98.7		98.7	98.7		98.7	98.7			
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION			109.6	95.4	99.8	119.7	94.1	102.1	100.7	97.4	98.4	114.2	94.1	100.4	108.5	94.1	98.6	111.2	97.4
0310	Concrete Forming & Accessories			103.3	36.9	45.6	93.3	36.1	43.6	101.0	43.2	50.7	96.9	36.1	44.0	94.6	35.8	43.4	93.0	50.2
0320	Concrete Reinforcing			110.0	85.9	97.9	111.0	42.0	76.2	101.4	85.7	93.5	103.3	85.8	96.9	110.6	49.8	80.0	112.0	95.8
0330	Cast-in-Place Concrete			122.8	47.9	93.3	111.1	46.3	85.6	100.2	51.2	80.9	111.1	46.3	85.6	121.3	46.2	91.7	111.1	48.3
03	CONCRETE			114.0	51.4	83.5	113.0	42.2	78.5	107.8	55.3	82.2	110.1	50.2	80.9	112.6	43.4	78.9	108.8	64.2
04	MASONRY			112.8	65.2	83.8	114.8	59.0	80.8	106.0	59.6	77.7	107.3	64.8	81.3	125.1	34.7	69.9	106.5	94.4
05	METALS			96.5	85.1	92.8	96.4	64.8	86.0	98.8	86.4	94.7	96.5	80.5	91.2	96.5	65.9	86.4	96.8	96.7
06	WOOD, PLASTICS & COMPOSITES			85.5	34.0	55.7	75.2	34.0	51.4	82.1	37.4	56.3	78.9	34.0	53.0	76.9	34.0	52.1	74.9	43.3
07	THERMAL & MOISTURE PROTECTION			108.2	50.8	84.9	108.8	48.4	84.2	105.7	53.7	84.6	108.5	50.8	85.0	108.1	43.0	81.6	108.2	56.8
08	OPENINGS			98.0	42.3	84.0	97.9	31.9	81.3	97.9	48.7	85.5	98.0	42.3	83.9	98.0	34.1	81.9	96.1	61.1
0920	Plaster & Gypsum Board			118.9	32.2	57.0	109.9	32.2	54.4	98.3	35.7	53.6	111.7	32.2	54.9	111.2	32.2	54.8	109.9	80.4
0950, 0980	Ceilings & Acoustic Treatment			145.7	32.2	70.7	145.7	32.2	70.7	144.8	35.7	72.8	145.7	32.2	70.7	145.7	32.2	70.7	145.7	80.4
0960	Flooring			119.5	37.6	95.4	111.2	37.6	89.6	114.9	75.5	103.3	113.6	37.6	91.3	112.2	37.6	90.3	111.0	84.7
0970, 0990	Wall Finishes & Painting/Coating			96.0	23.7	51.4	96.0	23.7	51.4	96.0	73.8	82.3	96.0	23.7	51.4	96.0	23.7	51.4	96.0	28.9
09	FINISHES			119.5	34.1	71.9	117.1	34.1	70.8	114.9	50.4	78.9	117.4	34.1	70.9	116.4	34.1	70.5	116.1	60.1
COVERS	DWS. 10 - 14, 25, 28, 41, 43, 44, 46			100.0	34.9	87.1	100.0	35.1	87.1	100.0	81.3	96.3	100.0	35.0	87.1	100.0	79.1	95.8	100.0	84.7
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC			94.5	63.0	81.7	94.5	70.5	84.7	100.3	66.0	86.4	100.4	35.6	74.2	94.5	37.5	71.4	100.4	90.7
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.			96.3	38.0	66.3	105.1	71.7	87.8	99.7	66.9	82.8	99.9	56.9	77.3	96.3	38.0	66.2	103.3	80.6
MF2010	WEIGHTED AVERAGE			101.7	57.0	82.0	102.7	58.8	83.3	102.1	65.7	86.0	102.2	53.1	80.9	101.9	46.4	77.4	102.7	70.1

Cost Indexes

DIVISION	NORTH DAKOTA						OHIO											
	WILLISTON			AKRON			ATHENS			CANTON			CHILLICOTHE			CINCINNATI		
	588			442 - 443			457			446 - 447			456			451 - 452		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	98.7	98.7		97.0	97.0		91.7	91.7		97.0	97.0		101.6	101.6		101.4	101.4	
34 SITE & INFRASTRUCTURE, DEMOLITION	112.2	94.1	99.7	91.7	104.6	100.6	103.8	94.8	97.6	91.8	104.1	100.3	89.0	106.6	101.2	86.1	106.1	99.9
Concrete Forming & Accessories	98.4	36.1	44.2	100.3	92.6	93.6	91.7	89.0	89.4	100.3	82.7	85.0	93.3	95.4	95.1	95.0	82.2	83.8
Concrete Reinforcing	113.2	42.0	77.3	93.4	92.0	92.7	93.4	87.6	90.4	93.4	77.3	85.3	90.6	81.0	85.8	96.0	83.2	89.6
Cast-in-Place Concrete	111.1	46.3	85.6	95.5	98.4	96.6	108.5	95.2	103.3	96.4	96.0	96.2	98.5	94.3	96.8	90.7	86.6	89.1
3 CONCRETE	110.2	42.2	77.1	95.1	93.8	94.5	102.6	90.3	96.6	95.6	85.9	90.9	96.9	92.1	94.6	91.6	84.0	87.9
4 MASONRY	101.2	59.0	75.5	90.4	95.6	93.6	76.1	91.1	85.2	91.1	86.5	88.3	82.9	100.4	93.6	82.5	87.3	85.4
5 METALS	96.6	64.8	86.1	92.7	82.5	89.3	100.5	79.3	93.5	92.7	76.2	87.2	92.8	85.1	93.0	95.2	84.7	91.7
6 WOOD, PLASTICS & COMPOSITES	80.2	34.0	53.5	102.2	91.4	96.0	83.8	90.3	87.5	102.7	80.9	90.1	96.2	94.1	95.0	98.5	80.0	87.8
7 THERMAL & MOISTURE PROTECTION	108.4	48.4	84.0	107.2	96.9	103.0	99.8	93.0	97.0	108.2	92.7	101.9	100.9	96.4	99.1	99.3	91.1	95.9
8 OPENINGS	98.0	31.9	81.4	112.2	91.5	107.0	101.0	86.3	97.3	105.9	78.0	98.9	92.9	86.1	91.2	101.7	79.7	96.1
Plaster & Gypsum Board	111.7	32.2	54.9	91.0	90.8	90.8	91.1	89.6	90.1	92.3	80.0	83.5	91.7	94.2	93.5	93.8	79.6	83.7
Ceilings & Acoustic Treatment	145.7	32.2	70.7	94.7	90.8	92.1	103.6	89.6	94.4	94.7	80.0	85.0	97.7	94.2	95.4	98.6	79.6	86.1
Flooring	114.7	37.6	92.1	100.4	92.1	98.0	127.7	100.1	119.6	100.6	82.1	95.2	103.9	103.6	103.8	104.8	90.6	100.7
Wall Finishes & Painting/Coating	96.0	23.7	51.4	100.8	102.3	101.7	103.1	96.1	98.8	100.8	83.3	90.0	100.1	92.5	95.4	100.1	86.1	91.5
9 FINISHES	117.6	34.1	71.0	98.1	93.3	95.4	103.0	92.7	97.3	98.3	82.1	89.3	99.6	97.1	98.2	100.1	83.7	90.9
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	35.1	87.1	100.0	94.0	98.8	100.0	56.1	91.3	100.0	91.5	98.3	100.0	92.0	98.4	100.0	92.4	98.5
FIRE SUPPRESSION, PLUMBING & HVAC	94.5	70.5	84.7	100.0	97.0	98.8	94.0	55.0	78.2	100.0	83.9	93.5	94.4	93.4	94.0	99.9	83.0	93.1
ELECTRICAL, COMMUNICATIONS & UTIL.	100.2	71.7	85.5	97.9	94.5	96.1	99.3	102.6	101.0	97.2	90.9	93.9	98.9	85.2	91.8	97.7	80.4	88.8
WEIGHTED AVERAGE	101.1	58.8	82.4	98.7	94.5	96.9	98.0	83.1	91.4	98.2	86.3	93.0	95.2	93.4	94.4	96.9	85.8	92.0
DIVISION	OHIO												OHIO					
	CLEVELAND			COLUMBUS			DAYTON			HAMILTON			LIMA			LORAIN		
	441			430 - 432			453 - 454			450			458			440		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	97.3	97.3		95.9	95.9		96.7	96.7		101.6	101.6		94.2	94.2		97.0	97.0	
34 SITE & INFRASTRUCTURE, DEMOLITION	91.7	104.9	100.8	93.2	100.9	98.5	84.9	106.0	99.4	84.8	106.2	99.5	97.6	94.5	95.5	91.1	103.4	99.6
Concrete Forming & Accessories	100.4	97.9	98.2	100.6	87.4	89.1	95.0	81.6	83.4	95.0	81.7	83.4	91.6	85.9	86.6	100.4	87.9	89.5
Concrete Reinforcing	93.8	92.3	93.0	103.7	83.0	93.3	96.0	81.2	88.6	96.0	83.2	89.6	93.4	81.4	87.4	93.4	92.1	92.8
Cast-in-Place Concrete	93.8	106.4	98.7	88.9	94.0	90.9	84.4	87.6	85.6	90.4	86.0	88.7	99.7	94.7	98.8	90.9	104.2	96.1
3 CONCRETE	94.3	99.0	96.6	93.5	88.5	91.1	88.4	83.4	85.9	91.5	83.6	87.6	95.8	88.7	92.4	92.8	93.8	93.3
4 MASONRY	95.0	103.4	100.1	91.4	95.0	93.6	82.0	83.7	83.1	82.4	86.0	84.6	104.8	84.9	92.6	87.1	97.6	93.5
5 METALS	94.3	84.9	91.2	94.3	81.2	90.0	94.4	77.9	88.9	94.5	84.7	91.2	100.5	81.1	94.1	93.3	83.0	89.9
6 WOOD, PLASTICS & COMPOSITES	101.2	94.9	97.6	98.6	84.9	90.7	99.9	80.3	88.6	98.5	80.0	87.8	83.7	85.2	84.6	102.2	85.3	92.5
7 THERMAL & MOISTURE PROTECTION	105.9	107.7	106.6	100.7	95.1	98.5	104.2	89.0	98.0	101.0	90.7	96.8	99.3	95.8	97.9	108.1	101.0	105.3
8 OPENINGS	101.7	93.4	99.6	103.4	81.6	97.9	101.8	79.9	96.3	99.1	79.7	94.2	101.0	80.0	95.7	105.9	88.2	101.4
Plaster & Gypsum Board	90.0	94.4	93.1	96.1	84.5	87.8	93.8	80.0	83.9	93.8	79.6	83.7	91.1	84.5	86.4	91.0	84.5	86.3
Ceilings & Acoustic Treatment	92.9	94.4	93.9	95.5	84.5	88.2	99.7	80.0	86.7	98.6	79.6	86.1	102.6	84.5	90.6	94.7	84.5	88.0
Flooring	100.2	105.0	101.6	95.2	90.0	93.7	107.7	83.0	100.5	104.8	90.6	100.7	126.8	90.8	116.3	100.6	105.0	101.9
Wall Finishes & Painting/Coating	100.8	106.5	104.3	99.0	92.5	95.0	100.1	85.9	91.4	100.1	86.1	91.5	103.2	84.9	91.9	100.8	106.5	104.3
9 FINISHES	97.6	99.7	98.8	97.3	88.0	92.1	101.1	82.0	90.4	100.0	83.4	90.7	102.1	86.4	93.3	98.1	92.6	95.1
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	98.3	99.7	100.0	94.7	98.9	100.0	91.9	98.4	100.0	92.0	98.4	100.0	92.9	98.6	100.0	95.2	99.0
FIRE SUPPRESSION, PLUMBING & HVAC	99.9	98.8	99.5	99.9	93.9	97.5	100.6	84.8	94.2	100.4	82.4	93.1	94.0	86.2	90.9	100.0	84.7	93.8
ELECTRICAL, COMMUNICATIONS & UTIL.	97.5	107.4	102.6	98.7	88.1	93.2	96.3	83.8	89.9	96.7	81.9	89.1	99.7	80.8	89.9	97.4	89.9	93.5
WEIGHTED AVERAGE	97.9	99.8	98.7	97.8	90.6	94.6	96.7	85.2	91.6	96.6	85.6	91.7	98.4	86.1	93.0	97.7	91.3	94.9
DIVISION	OHIO												OHIO					
	MANSFIELD			MARION			SPRINGFIELD			STUEBENVILLE			TOLEDO			YOUNGSTOWN		
	448 - 449			433			455			439			434 - 436			444 - 445		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	97.0	97.0		95.6	95.6		96.7	96.7		100.3	100.3		98.3	98.3		97.0	97.0	
34 SITE & INFRASTRUCTURE, DEMOLITION	87.9	104.4	99.3	89.2	99.8	96.5	85.2	104.6	98.6	134.7	109.2	117.1	92.4	101.8	98.9	91.6	105.0	100.8
Concrete Forming & Accessories	91.1	86.6	87.2	97.5	84.4	86.1	95.0	84.7	86.1	100.5	86.7	88.5	100.5	95.9	96.5	100.3	86.0	87.9
Concrete Reinforcing	85.0	77.9	81.4	95.6	83.0	89.3	96.0	81.2	88.6	93.1	85.4	89.2	103.7	89.8	96.7	93.4	86.9	90.1
Cast-in-Place Concrete	88.4	93.0	90.2	81.2	91.1	85.1	86.6	87.7	87.1	88.2	93.1	90.1	88.9	103.4	94.6	94.6	98.5	96.1
3 CONCRETE	87.8	86.7	87.2	85.8	86.1	86.0	89.6	84.7	87.2	89.7	88.1	88.9	93.5	97.0	95.2	94.7	90.0	92.4
4 MASONRY	89.6	97.4	94.3	92.9	96.1	94.8	82.2	84.0	83.3	79.8	91.2	86.7	99.5	100.1	99.8	90.7	92.7	91.9
5 METALS	93.5	77.1	88.1	93.4	79.2	88.7	94.3	77.6	88.8	90.1	79.6	86.6	94.1	87.6	91.9	92.7	80.3	88.6
6 WOOD, PLASTICS & COMPOSITES	91.2	85.3	87.8	94.9	84.9	89.2	101.5	84.7	91.8	90.9	85.1	87.6	98.6	95.1	96.6	102.2	83.8	91.6
7 THERMAL & MOISTURE PROTECTION	107.6	95.8	102.8	100.3	84.8	94.0	104.0	89.6	98.1	112.3	94.3	105.0	102.5	103.6	102.9	108.3	94.9	102.9
8 OPENINGS	105.1	79.6	98.7	97.3	80.2	93.0	99.5	80.4	94.7	98.3	82.9	94.4	101.2	91.4	98.7	105.9	84.7	100.6
Plaster & Gypsum Board	84.9	84.5	84.6	93.8	84.5	87.1	93.8	84.5	87.1	94.4	84.1	87.1	96.1	94.9	95.2	91.0	83.0	85.3
Ceilings & Acoustic Treatment	95.6	84.5	88.3	95.5	84.5	88.2	99.7	84.5	89.6	92.3	84.1	86.9	95.1	94.9	95.1	94.7	83.0	87.0
Flooring	95.7	104.5	98.3	93.8	73.0	87.7	107.7	83.0	100.5	122.3	95.1	114.3	94.5	101.8	96.6	100.6	93.7	98.6
Wall Finishes & Painting/Coating	100.8	91.2	94.9	99.0	50.1	68.8	100.1	85.9	91.4	113.1	95.5	102.2	99.0	102.9	101.4	100.8	93.5	96

City Cost Indexes

DIVISION		OHIO									OKLAHOMA								
		ZANESVILLE			ARDMORE			CLINTON			DURANT			ENID			GYMOM		
		437 - 438			734			736			747			737			739		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		95.6	95.6		81.8	81.8		81.0	81.0		81.0	81.0		81.0	81.0		81.0	81.0
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	92.0	101.1	98.2	98.9	90.4	93.0	100.5	89.0	92.5	93.8	88.8	90.3	101.9	89.0	93.0	106.1	97.6	97.6
0310	Concrete Forming & Accessories	94.8	84.5	85.9	91.3	39.6	46.3	90.2	34.3	41.5	83.8	39.5	45.3	93.4	33.6	41.4	96.7	71.5	71.5
0320	Concrete Reinforcing	95.0	84.9	89.9	96.4	77.7	87.0	96.9	77.7	87.2	97.3	61.6	79.3	96.3	77.7	86.9	96.9	77.3	77.3
0330	Cast-in-Place Concrete	85.6	90.1	87.3	97.9	43.1	76.3	94.6	43.1	74.3	91.5	43.0	72.4	94.6	45.4	75.2	94.6	71.0	71.0
03	CONCRETE	89.2	86.2	87.7	96.9	48.5	73.3	96.3	46.1	71.8	91.5	45.4	69.1	96.7	46.7	72.3	99.5	77.0	77.0
04	MASONRY	90.3	82.2	85.4	97.2	55.8	72.0	125.5	55.8	83.0	95.8	63.2	76.2	106.1	55.8	75.4	100.3	72.2	72.2
05	METALS	94.8	80.4	90.0	91.0	69.6	84.0	91.1	69.6	84.0	91.1	63.2	81.8	92.5	69.6	85.0	91.6	40.7	40.7
06	WOOD, PLASTICS & COMPOSITES	91.3	84.9	87.6	97.2	38.2	63.1	96.2	31.0	58.6	88.4	38.2	59.4	99.9	30.2	59.6	103.5	20.0	20.0
07	THERMAL & MOISTURE PROTECTION	100.5	89.1	95.8	97.5	59.2	81.9	97.6	58.5	81.7	97.2	57.0	80.9	97.6	58.4	81.7	97.9	28.2	28.2
08	OPENINGS	97.3	82.1	93.5	94.3	48.7	82.8	94.4	44.5	81.9	94.4	44.6	81.8	94.3	44.1	81.7	94.5	21.4	21.4
0920	Plaster & Gypsum Board	91.1	84.5	86.4	99.5	36.9	49.1	79.0	29.8	43.7	74.9	36.9	47.8	80.4	28.6	43.4	81.2	19.2	19.2
0950, 0980	Ceilings & Acoustic Treatment	95.5	84.5	88.2	83.8	36.9	52.9	83.8	29.5	48.0	83.8	36.9	52.9	83.8	28.6	47.4	86.5	14.0	14.0
0960	Flooring	92.0	87.4	90.7	107.2	45.2	89.0	105.8	43.1	87.4	102.0	64.8	91.1	108.0	43.1	88.9	110.0	25.5	25.5
0970, 0990	Wall Finishes & Painting/Coating	99.0	78.4	86.3	96.2	54.1	70.2	96.2	54.1	70.2	96.2	54.1	70.2	96.2	54.1	70.2	96.2	13.7	13.7
09	FINISHES	95.6	84.2	89.2	92.7	40.3	63.5	92.5	35.7	60.8	90.3	44.4	64.7	93.4	35.2	60.9	95.1	21.9	21.9
COVERS	DWS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	88.0	97.6	100.0	72.6	94.5	100.0	71.8	94.4	100.0	72.7	94.6	100.0	71.7	94.4	100.0	68.8	68.8
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	94.0	88.9	92.0	94.3	61.3	80.9	94.3	61.3	80.9	94.3	61.4	81.0	100.3	61.3	84.5	94.3	11.1	11.1
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	93.1	81.1	86.9	94.4	68.6	81.1	95.5	68.6	81.6	97.1	51.7	73.7	95.5	68.6	81.6	97.1	18.4	18.4
MF2010	WEIGHTED AVERAGE	94.5	86.1	90.8	95.0	60.1	79.6	96.5	58.8										

Cost Indexes

DIVISION	OREGON																	
	KLAMATH FALLS			MEDFORD			PENDLETON			PORTLAND			SALEM			VALE		
	976			975			978			970 - 972			973			979		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		98.7	98.7		98.7	98.7		96.2	96.2		98.7	98.7		98.7	98.7		96.2	96.2
34 SITE & INFRASTRUCTURE, DEMOLITION	117.6	103.8	108.1	110.0	103.8	105.7	107.8	97.3	100.6	104.0	103.8	103.9	96.6	103.8	101.5	94.7	97.3	96.5
Concrete Forming & Accessories	104.9	94.3	95.6	104.1	94.3	95.5	104.4	94.5	95.8	109.1	94.6	96.5	106.9	94.4	96.1	110.3	93.7	95.8
Concrete Reinforcing	100.8	104.5	102.7	102.6	104.5	103.5	100.0	104.5	102.3	106.0	104.5	105.2	106.2	104.5	105.3	97.5	104.4	101.0
Casht-Place Concrete	99.4	104.7	101.5	99.3	104.7	101.4	100.1	106.1	102.5	98.9	104.8	101.2	88.2	104.7	94.7	78.9	105.7	89.4
CONCRETE	111.9	99.6	105.9	106.7	99.6	103.2	93.1	100.2	96.6	102.2	99.8	101.0	96.8	99.7	98.2	78.2	99.7	88.6
MASONRY	120.1	108.5	113.0	100.9	108.5	105.5	110.4	108.6	109.3	104.5	108.5	107.0	108.7	108.5	108.6	108.7	108.6	108.6
METALS	86.8	97.9	90.5	87.1	97.9	90.6	92.6	98.5	94.5	88.3	98.2	91.6	87.8	98.1	91.2	92.5	97.6	94.2
WOOD, PLASTICS & COMPOSITES	93.4	91.3	92.2	92.3	91.3	91.7	94.8	91.4	92.9	98.9	91.3	94.5	95.2	91.3	93.0	102.9	91.4	96.3
THERMAL & MOISTURE PROTECTION	105.5	93.9	100.8	105.1	93.9	100.6	97.3	94.2	96.0	104.5	98.0	101.8	102.5	95.4	99.6	96.7	91.9	94.7
OPENINGS	97.8	99.5	98.2	100.7	99.5	100.4	93.2	99.6	94.8	95.7	99.5	96.7	97.6	99.5	98.1	93.1	92.3	92.9
Plaster & Gypsum Board	97.3	90.9	92.7	96.4	90.9	92.5	80.4	90.9	87.9	100.2	90.9	93.5	94.4	90.9	91.9	87.2	90.9	89.8
Ceilings & Acoustic Treatment	104.8	90.9	95.6	109.8	90.9	97.3	67.6	90.9	83.0	99.7	90.9	93.9	99.9	90.9	93.9	67.6	90.9	83.0
Flooring	105.9	108.2	106.6	105.2	108.2	106.1	74.1	108.2	84.1	104.9	108.2	105.9	107.6	108.2	107.8	76.1	108.2	85.5
Wall Finishes & Painting/Coating	108.7	61.3	79.4	106.7	61.3	79.4	98.3	69.0	80.2	108.3	69.0	84.0	108.7	69.0	84.2	98.3	69.0	80.2
FINISHES	106.5	92.6	98.7	106.3	92.6	98.7	72.6	93.5	84.3	103.6	93.4	97.9	103.2	93.4	97.7	72.8	93.5	84.3
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	102.9	100.6	100.0	102.9	100.6	100.0	95.8	99.2	100.0	103.0	100.6	100.0	102.9	100.6	100.0	103.2	100.6
FIRE SUPPRESSION, PLUMBING & HVAC	94.1	97.6	95.5	100.1	97.6	99.1	95.8	106.9	100.3	100.1	100.9	100.4	100.1	97.6	99.1	95.8	74.9	87.3
ELECTRICAL, COMMUNICATIONS & UTIL.	99.2	83.4	91.1	102.6	83.4	92.7	91.4	94.3	92.9	99.4	100.2	99.8	103.5	93.9	98.6	91.4	76.7	83.8
WEIGHTED AVERAGE	99.8	97.0	98.6	100.1	97.0	98.7	94.1	100.0	96.7	98.8	100.3	99.5	98.6	98.6	98.6	91.9	90.5	91.3
DIVISION	PENNSYLVANIA																	
	ALLETOWN			ALTOONA			BEDFORD			BRADFORD			BUTLER			CHAMBERSBURG		
	181			166			155			167			160			172		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		113.6	113.6		113.6	113.6		110.9	110.9		113.6	113.6		113.6	113.6		112.9	112.9
34 SITE & INFRASTRUCTURE, DEMOLITION	91.4	105.8	101.4	95.6	105.6	102.5	109.6	102.5	104.7	90.6	105.0	100.5	86.7	107.1	100.8	84.9	103.1	97.4
Concrete Forming & Accessories	100.4	113.5	111.8	86.4	79.5	80.4	85.6	82.0	82.4	88.4	80.2	81.2	87.8	93.7	92.9	86.1	81.1	81.8
Concrete Reinforcing	98.3	111.7	105.0	95.3	90.1	92.7	96.3	81.9	89.1	97.3	90.3	93.8	96.0	110.0	103.0	95.7	102.2	99.0
Casht-Place Concrete	82.8	104.8	91.5	92.2	84.8	89.3	107.1	72.8	93.6	88.1	89.2	88.6	91.5	96.8	87.5	89.5	72.5	82.8
CONCRETE	94.4	110.9	102.4	90.1	84.8	87.5	101.7	80.1	91.2	96.3	86.7	91.6	82.1	99.0	90.4	102.0	83.6	93.0
MASONRY	95.7	104.8	101.3	97.8	68.1	79.7	107.4	85.2	93.9	95.0	83.6	88.1	100.0	96.2	97.7	96.0	90.3	92.5
METALS	100.6	123.5	108.2	94.4	110.6	99.7	96.9	105.0	99.6	98.5	110.2	102.4	94.1	121.9	103.3	98.5	114.9	103.9
WOOD, PLASTICS & COMPOSITES	101.9	115.4	109.7	81.3	81.7	81.5	82.7	81.7	82.1	87.6	78.4	82.3	82.6	91.5	87.7	91.0	81.7	85.6
THERMAL & MOISTURE PROTECTION	99.5	117.2	106.7	98.9	90.5	95.4	104.8	88.5	98.2	99.5	91.2	96.1	98.5	100.1	99.2	98.7	75.5	89.3
OPENINGS	92.3	114.6	97.9	86.8	85.4	86.4	94.6	83.2	91.8	92.7	87.3	91.3	86.8	103.0	90.9	89.1	83.4	87.7
Plaster & Gypsum Board	103.9	115.6	112.3	96.6	80.9	85.4	95.4	80.9	85.0	97.2	77.5	83.1	96.5	91.0	92.6	100.8	80.9	86.6
Ceilings & Acoustic Treatment	88.9	115.6	106.6	93.5	80.9	85.2	89.7	80.9	83.9	91.8	77.5	82.4	94.5	91.0	92.2	91.8	80.9	84.6
Flooring	93.1	98.0	94.6	86.9	92.2	88.4	88.4	92.3	89.5	87.0	100.1	90.8	87.7	84.8	86.9	90.8	48.3	78.3
Wall Finishes & Painting/Coating	96.6	74.4	82.9	92.6	106.9	101.4	97.3	86.0	90.3	96.6	92.3	93.9	92.6	106.9	101.4	96.6	86.0	90.1
FINISHES	95.8	106.8	101.9	94.6	84.0	88.7	94.2	82.9	87.9	93.9	83.3	88.0	94.4	92.2	93.2	94.4	75.3	83.7
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	106.2	101.2	100.0	95.9	99.2	100.0	90.0	99.8	100.0	98.9	99.8	100.0	102.9	100.6	100.0	96.2	99.2
FIRE SUPPRESSION, PLUMBING & HVAC	100.2	112.2	100.0	99.7	83.7	93.2	94.1	88.4	91.7	94.3	90.3	92.7	93.8	95.0	94.3	94.3	89.9	92.5
ELECTRICAL, COMMUNICATIONS & UTIL.	99.9	97.7	98.7	89.8	107.8	99.1	92.6	107.8	100.5	93.5	107.8	100.9	90.4	102.0	96.4	92.1	85.8	88.8
WEIGHTED AVERAGE	97.9	109.2	102.9	94.8	90.6	93.0	97.2	91.7	94.8	95.5	93.8	94.7	92.3	100.5	95.9	95.5	89.5	92.9
DIVISION	PENNSYLVANIA																	
	DOYLESTOWN			DUBOIS			ERIE			GREENSBURG			HARRISBURG			HAZLETON		
	189			158			164 - 165			156			170 - 171			182		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		94.9	94.9		110.9	110.9		113.6	113.6		110.9	110.9		112.9	112.9		113.6	113.6
34 SITE & INFRASTRUCTURE, DEMOLITION	104.8	91.7	95.8	115.4	102.6	106.6	92.2	106.2	101.8	105.1	104.7	104.8	81.2	104.7	97.4	84.5	106.0	99.3
Concrete Forming & Accessories	85.3	128.2	122.6	85.0	83.0	83.2	100.0	87.4	89.0	91.4	93.7	93.4	93.7	90.7	91.1	83.2	88.3	87.6
Concrete Reinforcing	95.1	138.9	117.2	95.7	90.5	93.1	97.3	92.0	94.6	95.7	110.0	102.9	98.3	102.6	100.5	95.4	106.5	101.0
Casht-Place Concrete	78.3	89.1	82.5	103.2	91.4	98.6	90.7	84.2	88.1	99.4	96.4	98.2	87.2	96.3	90.8	78.2	91.6	83.5
CONCRETE	90.2	116.4	103.0	102.6	88.6	95.8	89.0	88.4	88.7	96.6	98.8	97.7	94.5	96.1	95.3	87.3	94.2	90.6
MASONRY	99.0	128.9	117.3	107.4	86.0	94.4	87.8	90.1	89.2	118.0	96.2	104.7	95.5	93.5	94.3	108.2	96.8	101.2
METALS	98.1	127.7	107.9	96.9	109.8	101.1	94.6	110.9	100.0	96.8	120.7	104.7	102.7	118.6	107.9	100.3	120.3	106.9
WOOD, PLASTICS & COMPOSITES	83.3	130.2	110.4	81.6	81.7	81.6	97.9	85.9	91.0	89.0	91.4	90.4	95.9	90.0	92.5	82.0	86.8	84.8
THERMAL & MOISTURE PROTECTION	97.8	132.0	111.7	105.1	94.8	100.9	99.2	93.5	96.9	104.7	99.8	102.7	105.2	108.9	106.7	99.1	105.7	101.8
OPENINGS	94.1	139.9	105.6	94.6	89.0	93.2	97.0	88.0	87.2	94.6	102.9	96.7	92.3	94.4	92.8	93.0	92.9	93.0
Plaster & Gypsum Board	94.8	130.9	120.6	94.0	80.9	84.6	103.9	85.2	90.5	96.5	91.0	92.5	100.9	89.4	92.7	95.3	86.1	88.7
Ceilings & Acoustic Treatment	88.1	130.9	116.4	89.7	80.9	83.9	88.9	85.2	86.5	88.8	91.0	90.2	93.5	89.4	90.8	90.0	86.1	87.4
Flooring	76.9	133.3	93.4	88.1	100.1	91.7	92.3	96.1	93.4	91.8	71.2	85.7	93.7	93.7	93.7	84.3	96.7	87.9
Wall Finishes & Painting/Coating	96.1	72.7	81.7	97.3	106.9	103.2	100.7	90.2	94.2	97.3	106.9	103						

City Cost Indexes

DIVISION	PENNSYLVANIA														
	INDIANA			JOHNSTOWN			KITTTANNING			LANCASTER			LEHIGH VALLEY		
	157	159	162	175 - 176	180	188	157	159	162	175 - 176	180	188	157	159	162
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433 CONTRACTOR EQUIPMENT	110.9	110.9		110.9	110.9		113.6	113.6		112.9	112.9		113.6	113.6	
0241, 31 - 34 SITE & INFRASTRUCTURE, DEMOLITION	103.1	103.6	103.4	110.2	103.7	105.8	89.4	107.1	101.6	77.0	104.6	96.1	88.6	105.6	100.3
0310 Concrete Forming & Accessories	86.1	86.2	86.2	85.0	83.3	83.5	87.8	93.8	93.0	87.9	89.8	89.6	94.3	112.4	110.1
0320 Concrete Reinforcing	94.9	110.0	102.6	96.3	109.8	103.1	96.0	110.1	103.1	95.4	102.5	99.0	95.4	111.7	103.6
0330 Cast-in-Place Concrete	97.4	96.3	97.0	108.0	89.9	100.9	84.7	96.8	89.5	76.2	95.5	83.8	84.7	103.5	92.1
03 CONCRETE	94.3	95.5	94.9	102.5	91.9	97.3	84.6	99.1	91.7	89.6	95.5	92.5	93.5	109.9	101.5
04 MASONRY	103.3	97.9	100.0	104.1	85.6	92.8	103.7	97.9	100.2	101.3	92.4	95.9	95.7	102.7	100.0
05 METALS	96.9	120.5	104.7	96.9	118.7	104.1	94.2	122.2	103.4	98.5	118.1	105.0	100.3	122.7	107.7
06 WOOD, PLASTICS & COMPOSITES	83.4	81.7	82.4	81.6	81.7	81.6	82.6	91.5	87.7	93.5	90.0	91.5	94.2	115.4	106.5
07 THERMAL & MOISTURE PROTECTION	104.6	97.8	101.8	104.8	93.3	100.2	98.6	100.6	99.4	98.3	97.3	97.9	99.4	105.2	101.7
08 OPENINGS	94.6	94.9	94.7	94.6	91.2	93.8	86.8	100.2	90.2	89.1	98.1	91.4	93.0	114.6	98.5
0920 Plaster & Gypsum Board	95.8	80.9	85.2	93.7	80.9	84.6	96.6	91.0	92.6	103.1	89.4	93.3	98.5	115.6	110.7
0950, 0980 Ceilings & Acoustic Treatment	89.7	80.9	83.9	88.8	80.9	83.6	94.5	91.0	92.2	91.8	89.4	90.2	90.0	115.6	106.9
0960 Flooring	88.9	100.1	92.2	88.1	92.3	89.4	87.7	102.4	92.0	91.8	93.7	92.3	89.8	98.0	92.2
0970, 0990 Wall Finishes & Painting/Coating	97.3	106.9	103.2	97.3	106.9	103.2	92.6	106.9	101.4	96.6	60.2	74.2	96.6	70.0	80.2
09 FINISHES	93.8	89.1	91.2	93.8	86.4	89.7	94.6	95.3	95.0	94.3	87.3	90.4	94.3	104.8	100.1
COVERS DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	101.7	100.3	100.0	99.2	99.8	100.0	102.9	100.6	100.0	97.6	99.5	100.0	102.1	100.4
21, 22, 23 FIRE SUPPRESSION, PLUMBING & HVAC	94.1	92.8	93.5	94.1	89.0	92.0	93.8	97.7	95.4	94.3	91.6	93.2	94.3	111.1	101.1
26, 27, 3370 ELECTRICAL, COMMUNICATIONS & UTIL.	93.2	107.8	100.8	93.2	107.8	100.8	89.8	107.9	99.1	93.5	48.6	69.4	94.3	138.5	117.1
MF2010 WEIGHTED AVERAGE	96.0	99.1	97.4	97.2	95.8	96.6	92.8	102.4	97.0	94.3	89.7	92.3	95.6	113.5	103.5

DIVISION	PENNSYLVANIA														
	NEW CASTLE			NORRISTOWN			OIL CITY			PHILADELPHIA			PITTSBURGH		
	161	194	163	190 - 191	150 - 152	179	161	194	163	190 - 191	150 - 152	179	161	194	163
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433 CONTRACTOR EQUIPMENT	113.6	113.6		98.2	98.2		113.6	113.6		97.6	97.6		112.1	112.1	
0241, 31 - 34 SITE & INFRASTRUCTURE, DEMOLITION	87.2	107.0	100.9	91.9	99.2	96.9	85.6	105.2	99.1	98.6	98.3	98.4	108.7	106.8	107.4
0310 Concrete Forming & Accessories	87.8	96.2	95.1	87.0	132.2	126.3	87.8	81.4	82.3	102.8	134.7	130.6	98.5	97.4	97.5
0320 Concrete Reinforcing	94.7	93.7	94.2	95.5	146.3	121.1	96.0	93.5	94.7	98.5	146.3	122.6	96.8	110.5	104.6
0330 Cast-in-Place Concrete	82.3	95.9	87.6	81.1	128.6	99.8	79.9	93.7	85.0	94.4	128.6	110.9	103.2	96.6	100.6
03 CONCRETE	82.5	96.8	89.4	87.6	133.2	109.8	80.9	89.4	85.4	100.0	134.3	116.7	99.9	100.6	100.3
04 MASONRY	99.3	96.2	97.4	109.3	129.0	121.3	99.8	89.9	93.8	96.2	129.1	116.3	97.1	103.6	101.0
05 METALS	94.2	114.0	100.7	99.7	133.0	110.7	94.2	111.8	100.0	103.5	133.2	113.3	98.3	121.7	106.0
06 WOOD, PLASTICS & COMPOSITES	82.6	95.8	90.3	84.3	132.2	112.0	82.6	78.4	80.2	102.7	135.5	121.7	98.2	95.8	96.8
07 THERMAL & MOISTURE PROTECTION	96.6	97.7	98.2	97.5	132.5	111.7	98.5	93.8	96.6	98.4	132.9	112.4	104.9	102.2	103.8
08 OPENINGS	86.8	97.5	89.5	89.6	143.1	103.1	86.8	80.3	85.2	98.1	145.0	109.9	97.6	106.0	99.7
0920 Plaster & Gypsum Board	96.6	95.4	95.8	90.8	133.0	121.0	96.6	77.5	83.0	98.6	136.5	125.7	103.1	95.4	97.6
0950, 0980 Ceilings & Acoustic Treatment	94.5	95.4	95.1	99.7	133.0	121.7	94.5	77.5	83.3	99.7	136.5	124.0	89.7	95.4	93.5
0960 Flooring	87.7	60.2	79.6	91.9	139.3	105.8	87.7	100.1	91.4	99.8	141.2	112.0	95.3	107.4	98.9
0970, 0990 Wall Finishes & Painting/Coating	92.6	106.9	101.4	99.6	146.7	128.7	92.6	106.9	101.4	99.6	146.7	128.7	97.3	114.0	107.6
09 FINISHES	94.5	90.3	92.1	95.6	134.9	117.5	94.3	85.7	89.5	99.2	137.2	120.4	96.9	100.3	98.8
COVERS DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	103.3	100.7	100.0	103.0	103.0	100.0	100.0	100.0	100.0	119.0	103.8	100.0	103.3	100.7
21, 22, 23 FIRE SUPPRESSION, PLUMBING & HVAC	93.8	94.7	94.2	93.9	128.3	107.9	93.8	92.3	93.2	99.9	128.4	111.5	100.0	100.3	100.1
26, 27, 3370 ELECTRICAL, COMMUNICATIONS & UTIL.	90.4	91.4	90.9	94.7	142.8	119.5	94.2	102.0	97.4	99.1	142.8	121.7	95.5	107.9	101.9
MF2010 WEIGHTED AVERAGE	92.4	97.5	94.6	95.2	130.2	110.6	92.4	94.7	93.4	99.9	130.9	113.6	99.1	104.6	101.5

DIVISION	PENNSYLVANIA														
	READING			SCRANTON			STATE COLLEGE			STROUDSBURG			SUNBURY		
	195 - 196	184 - 185	168	183	178	154	195 - 196	184 - 185	168	183	178	154	195 - 196	184 - 185	168
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433 CONTRACTOR EQUIPMENT	116.9	116.9		113.6	113.6		112.9	112.9		113.6	113.6		113.6	113.6	
0241, 31 - 34 SITE & INFRASTRUCTURE, DEMOLITION	96.3	110.9	106.4	91.8	106.1	101.7	82.1	104.4	97.4	86.3	104.0	98.5	90.3	105.8	101.0
0310 Concrete Forming & Accessories	102.3	86.0	88.1	100.6	89.2	90.7	85.2	79.4	80.2	91.1	88.8	88.8	92.3	87.5	88.1
0320 Concrete Reinforcing	96.8	102.1	99.5	98.3	106.5	102.4	96.5	90.8	93.6	98.6	118.6	108.7	97.3	102.6	100.0
0330 Cast-in-Place Concrete	72.7	96.7	82.1	86.5	92.6	88.9	83.4	68.3	77.4	81.5	75.1	79.0	88.7	95.3	91.3
03 CONCRETE	86.3	94.2	90.1	96.2	95.0	95.6	96.3	79.2	88.0	91.0	90.8	90.9	96.9	94.4	95.7
04 MASONRY	97.8	95.5	96.4	96.1	98.3	97.4	101.4	81.5	89.3	92.5	102.3	98.5	95.0	92.0	93.1
05 METALS	99.9	118.9	106.2	102.7	120.6	106.6	98.3	111.5	102.7	100.4	120.2	106.9	98.4	118.4	105.0
06 WOOD, PLASTICS & COMPOSITES	102.8	82.8	91.3	101.9	86.9	93.2	89.7	81.7	85.1	88.5	86.9	87.6	91.8	86.8	88.9
07 THERMAL & MOISTURE PROTECTION	97.9	108.9	102.4	99.4	98.0	98.9	98.5	91.5	95.7	99.3	87.1	94.3	99.4	104.9	101.6
08 OPENINGS	95.3	94.0	95.0	92.3	92.9	92.5	93.1	85.4	88.2	93.0	89.7	92.3	89.3	91.7	89.9
0920 Plaster & Gypsum Board	103.0	82.1	88.0	106.3	86.2	92.0	98.7	80.9	85.0	96.6	86.2	89.2	97.3	86.1	89.3
0950, 0980 Ceilings & Acoustic Treatment	88.7	82.1	84.3	97.1	86.2	89.9	89.0	80.9	83.7	88.1	86.2	86.9	88.7	91.8	89.6
0960 Flooring	97.3	93.7	96.2	93.1	110.2	98.1	90.3	102.1	93.8	87.5	53.8	77.6	88.7	91.8	89.6
0970, 0990 Wall Finishes & Painting/Coating	98.1	100.9	99.8	96.6	100.5	99.0	96.6	106.9	103.0	96.6	68.1	79.0	96.6	100.5	99.0
09 FINISHES	96.5	87.6	91.5	97.9	93.6	95.5	93.1	86.0	85.1	92.8	79.9	85.6	93.9	89.5	91.4
COVERS DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	99.6	99.9	100.0	97.1	99.4	100.0	93.1	98.6	100.0	65.9	93.2	100.0	93.6	98.7
21, 22, 23 FIRE SUPPRESSION, PLUMBING & HVAC	100.0	107.9	103.2	100.2	100.5	100.3	94.3	85.7	90.8	94.3	102.2	97.5	94.3	91.3	93.1
26, 27, 3370 ELECTRICAL, COMMUNICATIONS & UTIL.	101.3	90.2	95.6	99.9	94.5	97.1	92.6	107.8	100.5	94.3	142.6	119.2	92.0	86.7	89.3
MF2010 WEIGHTED AVERAGE	97.6	100.0	98.6	98.6	99.5	99.0	95.0	91.8	93.6	94.9	103.0	98.5	95.1	95.1	95.1

Cost Indexes

DIVISION		PENNSYLVANIA																	
		WASHINGTON			WELLSBORO			WESTCHESTER			WILKES-BARRE			WILLIAMSPORT			YORK		
		153			169			193			186 - 187			177			173 - 174		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		110.9	110.9		113.6	113.6		98.2	98.2		113.6	113.6		113.6	113.6		112.9	112.9	
34 SITE & INFRASTRUCTURE, DEMOLITION	103.7	104.7	104.4	94.7	103.8	101.0	98.0	96.9	97.2	84.3	106.1	99.3	81.6	104.4	97.3	80.5	104.7	97.2	
Concrete Forming & Accessories	86.2	93.8	92.9	87.8	85.9	86.1	93.5	129.2	124.6	91.5	89.2	89.5	89.1	61.9	65.4	83.3	87.9	87.3	
Concrete Reinforcing	95.7	110.1	103.0	96.5	106.1	101.4	94.6	112.9	103.8	97.3	106.5	102.0	96.5	68.5	82.4	97.3	102.6	100.0	
Cast-in-Place Concrete	97.4	96.5	97.1	87.4	88.5	87.8	89.7	128.0	104.8	78.2	92.6	83.9	75.0	74.0	74.6	81.5	95.7	87.1	
CONCRETE	94.4	99.0	96.6	98.7	91.8	95.3	95.0	125.4	109.8	88.1	95.0	91.4	84.9	69.3	77.3	94.6	94.7	94.7	
MASONRY	103.1	97.9	99.9	101.1	92.0	95.6	103.4	129.0	119.0	108.8	98.3	102.4	86.9	92.3	90.2	96.1	92.4	93.9	
METALS	96.6	121.0	104.6	98.4	115.2	104.0	99.7	117.0	105.4	98.6	120.7	105.9	98.5	101.5	99.5	100.1	118.6	106.2	
WOOD, PLASTICS & COMPOSITES	83.5	91.4	88.1	87.1	86.8	86.9	91.6	130.1	113.8	90.9	86.7	88.5	88.5	54.2	68.7	87.8	86.8	87.2	
THERMAL & MOISTURE PROTECTION	104.6	100.2	102.8	99.7	92.0	96.6	97.8	131.9	111.7	99.0	106.3	102.0	98.9	101.4	99.9	98.4	108.1	102.4	
OPENINGS	94.5	102.9	96.7	92.6	92.9	92.7	89.6	126.7	99.0	89.3	97.5	91.4	89.3	56.8	81.1	89.1	92.6	90.0	
Plaster & Gypsum Board	95.6	91.0	92.3	96.4	86.1	89.1	92.7	130.9	120.0	97.6	86.0	89.4	97.6	52.5	65.4	99.0	86.1	89.8	
Ceilings & Acoustic Treatment	88.8	91.0	90.2	89.0	86.1	87.1	99.7	130.9	120.3	91.8	86.0	88.0	91.8	52.5	65.9	90.8	86.1	87.7	
Flooring	88.9	101.1	92.2	86.7	53.2	76.9	95.4	141.2	108.9	88.4	96.7	90.9	87.5	52.1	77.1	89.2	93.7	90.5	
Wall Finishes & Painting/Coating	97.3	106.9	103.2	96.6	100.5	99.0	99.6	146.7	128.7	96.6	103.2	100.7	96.6	103.2	100.7	96.6	89.0	91.9	
FINISHES	93.6	95.0	94.4	93.6	81.2	86.7	97.4	131.9	116.6	93.8	91.1	92.3	93.4	63.5	76.7	93.1	88.7	90.6	
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	102.8	100.6	100.0	93.6	98.7	100.0	114.7	102.9	100.0	97.1	99.4	100.0	93.3	98.7	100.0	97.5	99.5	
FIRE SUPPRESSION, PLUMBING & HVAC	94.1	97.9	95.6	94.3	90.6	92.8	93.9	125.8	106.8	94.3	99.2	96.3	94.3	90.7	92.8	100.2	91.7	96.7	
ELECTRICAL, COMMUNICATIONS & UTIL.	92.6	107.8	100.5	93.5	84.0	88.6	94.6	120.8	108.1	94.3	85.8	89.9	92.5	49.5	70.3	93.5	85.8	89.5	
WEIGHTED AVERAGE	95.9	102.1	98.6	96.1	92.4	94.5	96.1	122.8	107.9	94.8	98.2	96.3	93.0	79.6	87.1	96.3	95.2	95.8	
DIVISION		PUERTO RICO						RHODE ISLAND						SOUTH CAROLINA					
		SAN JUAN			NEWPORT			PROVIDENCE			AIKEN			BEAUFORT			CHARLESTON		
		009			028			029			298			299			294		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		90.2	90.2		101.9	101.9		101.9	101.9		99.5	99.5		99.5	99.5		99.5	99.5	
34 SITE & INFRASTRUCTURE, DEMOLITION	131.5	90.1	103.0	87.5	102.9	98.1	88.6	102.9	98.5	128.4	86.4	99.4	122.8	84.5	96.4	103.7	84.1	90.2	
Concrete Forming & Accessories	95.4	17.4	27.6	102.3	117.2	115.2	101.0	117.2	115.0	96.3	71.7	74.9	95.2	39.4	46.6	94.3	41.1	48.1	
Concrete Reinforcing	186.3	12.2	98.6	103.6	112.7	108.2	103.6	112.7	108.2	95.1	69.3	82.1	94.2	27.3	60.5	94.0	58.9	76.3	
Cast-in-Place Concrete	107.8	31.0	77.6	83.5	117.3	96.8	102.6	117.3	108.4	93.1	73.1	85.2	93.1	48.6	75.6	109.2	49.3	85.6	
CONCRETE	115.0	22.2	69.8	100.9	115.9	108.2	110.4	115.9	113.1	110.3	72.8	92.0	107.6	42.4	75.8	104.1	49.0	77.2	
MASONRY	84.4	16.3	42.8	101.1	122.3	114.0	104.6	122.3	115.4	81.2	65.0	71.3	97.2	34.8	59.1	98.6	38.8	62.1	
METALS	111.9	35.1	86.5	98.0	108.9	101.6	98.0	108.9	101.6	86.1	86.6	86.2	86.1	69.5	80.6	87.9	77.0	84.3	
WOOD, PLASTICS & COMPOSITES	93.4	17.2	49.4	99.9	117.8	110.2	99.1	117.8	109.9	99.8	72.9	84.2	97.8	40.1	64.5	96.6	40.1	64.0	
THERMAL & MOISTURE PROTECTION	129.6	21.4	85.6	101.5	114.5	106.8	99.1	114.5	105.3	101.3	70.2	88.7	101.0	37.8	75.3	100.1	42.3	76.6	
OPENINGS	146.8	14.6	113.5	96.6	115.7	101.4	97.2	115.7	101.9	93.2	68.7	87.1	93.3	38.8	79.6	97.3	43.8	83.8	
Plaster & Gypsum Board	115.3	14.4	43.3	95.1	117.7	111.2	93.0	117.7	110.6	108.4	71.9	82.3	111.3	38.1	59.0	113.4	38.1	59.6	
Ceilings & Acoustic Treatment	243.9	14.4	92.3	99.2	117.7	111.4	98.5	117.7	111.2	93.7	71.9	79.3	97.3	38.1	58.2	97.3	38.1	58.2	
Flooring	197.1	13.7	143.3	95.3	134.8	106.9	94.9	134.8	106.6	106.2	71.6	96.0	107.8	53.6	91.9	107.3	61.0	93.7	
Wall Finishes & Painting/Coating	193.0	12.6	81.7	92.3	120.8	109.9	92.3	120.8	109.9	114.8	74.1	89.7	114.8	36.6	66.5	114.8	41.3	69.4	
FINISHES	207.2	16.4	100.8	98.5	121.4	111.2	97.7	121.4	110.9	105.4	72.0	86.7	106.5	42.0	70.5	104.2	44.3	70.8	
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	17.0	83.5	100.0	103.1	100.6	100.0	103.1	100.6	100.0	77.6	95.5	100.0	46.7	89.4	100.0	70.3	94.1	
FIRE SUPPRESSION, PLUMBING & HVAC	102.8	13.3	66.5	100.0	108.3	103.4	99.9	108.3	103.3	94.3	67.7	83.5	94.3	25.4	66.4	100.2	39.9	75.8	
ELECTRICAL, COMMUNICATIONS & UTIL.	130.6	12.6	69.7	101.4	99.0	100.2	99.7	99.0	99.3	94.3	70.0	81.8	97.7	32.2	63.9	96.2	94.3	95.2	
WEIGHTED AVERAGE	121.3	24.1	78.4	99.2	111.1	104.5	100.2	111.1	105.0	96.8	72.8	86.2	97.5	42.5	73.3	98.4	57.4	80.3	
DIVISION		SOUTH CAROLINA						SOUTH CAROLINA						SOUTH DAKOTA					
		COLUMBIA			FLORENCE			GREENVILLE			ROCK HILL			SPARTANBURG			ABERDEEN		
		290 - 292			295			296			297			293			574		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		99.5	99.5		99.5	99.5		99.5	99.5		99.5	99.5		99.5	99.5		98.7	98.7	
34 SITE & INFRASTRUCTURE, DEMOLITION	101.5	84.0	89.5	115.4	84.1	93.8	109.7	83.7	91.8	107.1	83.6	90.9	109.5	83.7	91.7	98.8	94.9	96.1	
Concrete Forming & Accessories	96.0	40.2	47.5	83.0	40.3	45.9	93.9	40.2	47.2	92.5	37.9	45.0	96.8	40.2	47.6	100.2	38.9	46.9	
Concrete Reinforcing	94.0	58.7	76.2	93.7	58.8	76.1	93.6	46.9	70.1	94.4	46.7	70.4	93.6	46.9	70.1	108.5	40.4	74.1	
Cast-in-Place Concrete	112.1	49.9	87.6	93.0	49.1	75.7	93.0	49.0	75.7	93.0	44.1	73.7	93.0	49.0	75.7	105.9	45.7	82.2	
CONCRETE	105.6	48.7	77.9	102.2	48.5	76.1	100.8	46.3	74.2	98.9	43.5	71.9	101.0	46.3	74.3	103.1	43.0	73.8	
MASONRY	92.9	36.8	58.6	81.3	38.8	55.4	79.1	38.8	54.5	105.1	34.1	61.8	81.3	38.8	55.4	108.2	56.7	76.8	
METALS	87.9	76.3	84.1	86.9	76.6	83.5	86.9	72.3	82.1	86.1	71.8	81.4	86.9	72.3	82.1	102.9	66.1	90.8	
WOOD, PLASTICS & COMPOSITES	99.0	39.7	64.7	83.1	39.7	58.0	96.6	39.7	63.7	94.9	37.7	61.8	100.4	39.7	65.3	96.9	38.2	63.0	
THERMAL & MOISTURE PROTECTION	98.8	41.0	75.3	100.4	42.2	76.8	100.3	42.2	76.7	100.2	39.9	75.7	100.4	42.2	76.7	107.2	50.3	84.0	
OPENINGS	97.3	43.5	83.7	93.3	43.5	80.8	93.2	40.7	80.0	93.3	39.8	79.8	93.3	40.7	80.0	93.8	39.0	80.0	
Plaster & Gypsum Board	100.7	37.6	55.6	101.0	37.6	55.7	106.6	37.6	57.3	105.7	35.6	55.6	108.9	37.6	58.0	111.3	36.6	57.9	
Ceilings & Acoustic Treatment	96.4	37.6	57.6	94.6	37.6	57.0	93.7	37.6	56.6	93.7	35.6	55.3	97.3	37.6	56.6	112.9	36.6	62.5	
Flooring	104.0	45.7	86.8	98.5	45.7	83.0	104.9	59.9	91.7	104.0	46.5	87.1	106.4	59.9	92.7	115.7	52.7	97.2	
Wall Finishes & Painting/Coating	112.2	41.3	68.5	114.8	41.3	69.4	114.8	41.3	69.4	114.8	41.3	69.4	114.8	41.3	69.4	96.0	39.1	60.9	
FINISHES	100.8	41.0	67.5	101.0	41.5	67.8	102.9	43.9	70.0	102.2	39.5	67.2	103.6	43.9	70.3	109.1	41.1	71.1	
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	70.1	94.0	100.0	70.1	94.0	100.0	70.1	94.0	100.0	69.3	93.9	100.0	70.1	94.0	100.0	43.8	88.8	
FIRE SUPPRESSION, PLUMBING & HVAC	99.9	35.3	73.7	100.2	35.3	73.9	100.2	33.9	73.3	94.3	32.9	69.4	100.2	33.9	73.3	100.2	42.7	76.9	
ELECTRICAL, COMMUNICATIONS & UTIL.	95.2	48.2	71.0	94.2	45.9	69.3	96.2	49.6	72.2	96.2	49.6	72.2	96.2	49.6	72.2	100.3	54.4	76.6	
WEIGHTED AVERAGE	97.8	49.3	76.4	96.6	49.3	75.8	96.6	49.0	75.6	96.0	47.2	74.5	96.8	49.0	75.2	101.6	52.2	79.8	

City Cost Indexes

DIVISION		SOUTH DAKOTA																	
		MITCHELL			MOBRIDGE			PIERRE			RAPID CITY			SIOUX FALLS			WATERFORD		
		573			576			575			577			570-571			572		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		98.7	98.7		98.7	98.7		98.7	98.7		98.7	98.7		99.6	99.6		98.7	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	95.7	94.9	95.1	95.6	94.9	95.1	94.0	94.9	94.7	96.9	95.0	95.6	94.6	96.6	96.0	95.5	94.3	
0310	Concrete Forming & Accessories	99.5	39.3	47.1	91.1	39.1	45.8	98.9	40.0	47.7	106.9	38.1	47.0	99.6	42.6	50.0	88.1	38.3	
0320	Concrete Reinforcing	107.8	49.2	78.2	110.6	40.4	75.2	108.0	59.1	83.3	101.4	59.2	80.1	101.4	59.3	80.2	104.9	40.3	
0330	Cast-in-Place Concrete	102.9	44.4	79.9	102.9	45.7	80.4	88.8	44.0	71.2	102.1	44.6	79.5	94.5	45.0	75.0	102.9	45.1	
03	CONCRETE	100.8	44.2	73.2	100.7	43.1	72.6	93.7	46.5	70.7	99.9	45.8	73.5	94.5	46.0	71.8	99.6	43.0	
04	MASONRY	96.8	54.5	71.0	105.7	56.7	75.8	103.8	54.8	73.9	105.7	55.9	75.3	101.3	56.6	74.0	131.0	58.3	
05	METALS	101.9	66.3	90.2	102.0	66.1	90.1	102.9	74.6	93.6	104.7	75.1	94.9	104.9	75.4	95.1	101.9	66.8	
06	WOOD, PLASTICS & COMPOSITES	96.0	38.8	62.9	86.3	38.5	58.7	94.8	39.0	62.6	100.2	35.4	62.7	95.6	41.7	64.5	83.3	38.3	
07	THERMAL & MOISTURE PROTECTION	107.0	48.0	83.0	107.1	50.3	84.0	106.9	48.3	83.1	107.5	49.8	84.1	109.4	51.2	85.7	106.8	50.9	
08	OPENINGS	92.3	39.5	79.0	95.2	38.5	80.9	96.9	44.9	83.8	98.0	43.0	84.1	98.2	46.4	85.2	92.3	38.1	
0920	Plaster & Gypsum Board	109.3	37.1	57.8	103.1	36.8	55.8	98.3	37.4	54.8	110.5	33.7	55.6	108.3	40.2	59.6	107.1	36.8	
0950, 0980	Ceilings & Acoustic Treatment	109.2	37.1	61.6	112.9	36.8	62.6	108.3	37.4	61.5	114.7	33.7	61.2	112.0	40.2	64.6	109.2	36.8	
0960	Flooring	115.1	52.7	96.8	109.6	52.7	92.9	114.8	37.5	92.1	114.8	75.4	103.2	114.8	78.2	104.1	108.1	52.7	
0970, 0990	Wall Finishes & Painting/Coating	96.0	42.8	63.2	96.0	43.9	63.9	96.0	47.0	65.8	96.0	47.0	65.8	96.0	47.0	65.8	96.0	47.0	
09	FINISHES	107.7	41.8	70.9	106.2	41.8	70.2	105.9	39.5	68.9	109.0	45.0	73.3	108.0	49.1	75.2	104.6	41.1	
COVERS	DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	40.6	88.2	100.0	43.8	88.8	100.0	74.2	94.9	100.0	74.0	94.8	100.0	74.5	94.9	100.0	40.7	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	94.2	42.3	73.2	94.2	42.8	73.4	100.1	42.4	76.7	100.2	42.9	77.0	100.2	41.2	76.3	94.2	42.8	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	98.7	46.7	71.9	100.3	47.6	73.2	100.1	52.1	75.3	97.0	52.1	73.8	99.2	63.1	80.6	97.9	47.4	
MF2010	WEIGHTED AVERAGE	98.6	51.0	77.6	99.3	51.4	78.2	100.1	53.8	79.7	101.4	54.6	80.7	100.7	57.1	81.5	99.8	51.6	

DIVISION		TENNESSEE																	
		CHATTANOOGA			COLUMBIA			COOKEVILLE			JACKSON			JOHNSON CITY			KNOXVILLE		
		373 - 374			384			385			383			376			377 - 379		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		103.8	103.8		98.0	98.0		98.0	98.0		104.0	104.0		97.8	97.8		97.8	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	102.1	98.6	99.7	89.3	87.3	87.9	95.5	86.7	89.4	98.8	97.1	97.6	110.0	87.5	94.5	87.2	88.0	
0310	Concrete Forming & Accessories	96.6	57.1	62.3	83.4	61.3	64.1	83.5	37.4	43.4	89.7	47.5	53.0	84.5	40.7	46.4	95.3	43.8	
0320	Concrete Reinforcing	88.5	62.6	75.5	90.9	62.6	76.7	90.9	62.6	76.6	90.9	62.9	76.8	89.1	61.0	75.0	88.5	61.1	
0330	Cast-in-Place Concrete	97.3	62.1	83.4	92.7	53.3	77.2	105.0	45.2	81.5	102.6	51.5	82.4	78.3	62.7	72.1	91.4	50.1	
03	CONCRETE	93.3	61.6	77.9	93.9	60.4	77.6	103.7	47.0	76.1	95.7	53.7	75.3	98.9	54.2	77.1	90.6	51.3	
04	MASONRY	103.9	51.6	72.0	121.4	56.6	81.8	115.6	46.2	73.3	121.6	49.9	77.8	118.8	47.3	75.2	81.4	55.0	
05	METALS	96.2	87.4	93.3	90.6	88.0	89.7	90.7	86.9	89.4	92.9	87.6	91.1	93.5	86.1	91.0	96.8	86.3	
06	WOOD, PLASTICS & COMPOSITES	106.2	58.8	78.8	74.0	62.8	67.6	74.2	35.7	52.0	90.5	48.2	66.0	79.2	39.2	56.1	92.4	36.2	
07	THERMAL & MOISTURE PROTECTION	95.6	59.6	81.0	90.4	61.1	78.5	90.8	48.2	73.5	92.6	51.5	75.8	91.1	55.5	76.6	89.2	59.3	
08	OPENINGS	102.1	57.3	90.8	92.0	57.6	83.4	92.0	44.0	79.9	101.5	53.9	89.5	97.5	46.9	84.8	94.3	47.0	
0920	Plaster & Gypsum Board	76.1	58.0	63.2	82.3	62.1	67.9	82.3	34.2	47.9	83.9	47.0	57.6	98.3	37.8	55.1	105.8	37.8	
0950, 0980	Ceilings & Acoustic Treatment	99.7	58.0	72.2	82.9	62.1	69.2	82.9	34.2	50.7	91.8	47.0	62.2	95.8	37.8	57.5	96.7	37.8	
0960	Flooring	98.1	59.3	86.7	92.8	61.5	71.9	92.9	61.4	83.7	91.7	42.7	77.3	94.7	42.6	79.4	99.5	58.4	
0970, 0990	Wall Finishes & Painting/Coating	104.4	55.7	74.3	94.6	35.2	57.9	94.6	38.4	59.9	96.0	52.3	69.0	101.6	44.4	66.3	101.6	41.2	
09	FINISHES	96.1	57.4	74.5	94.7	51.5	70.6	95.3	40.7	64.8	95.0	46.3	67.8	100.1	40.3	66.8	92.6	46.1	
COVERS	DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	44.4	88.9	100.0	50.7	90.2	100.0	44.2	88.9	100.0	46.5	89.3	100.0	46.6	89.4	100.0	49.1	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	100.2	63.3	85.2	96.9	77.4	89.0	96.9	72.1	86.9	100.0	71.6	88.5	99.9	56.3	82.2	99.9	66.7	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	102.4	69.3	85.3	95.1	61.0	77.5	96.8	61.9	78.8	102.5	62.1	81.7	92.3	49.2	70.1	97.9	58.1	
MF2010	WEIGHTED AVERAGE	99.0	66.2	84.6	95.7	61.1	83.1	97.0	60.2	80.8	99.2	63.8	83.6	98.7	56.7	80.2	95.4	61.8	

DIVISION		TEXAS																	
		MCKENZIE			MEMPHIS			NASHVILLE			ABILENE			AMARILLO			AUSTIN		
		382			375.380 - 381			370 - 372			795 - 796			790 - 791			786 - 787		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		98.0	98.0		102.2	102.2		104.1	104.1		88.9	88.9		88.9	88.9		88.9	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	95.0	87.0	89.5	90.5	93.3	92.5	96.6	99.5	96.6	95.1	86.0	88.5	95.3	87.1	89.6	97.0	88.5	
0310	Concrete Forming & Accessories	90.8	40.3	46.9	95.4	60.4	64.9	97.0	64.0	68.3	95.1	40.2	47.4	95.6	54.1	59.5	90.2	53.4	
0320	Concrete Reinforcing	91.1	62.9	76.9	97.3	63.5	80.3	92.6	63.0	77.7	93.8	51.8	72.6	93.8	50.0	71.7	88.8	48.0	
0330	Cast-in-Place Concrete	102.8	60.0	85.9	90.8	62.7	79.8	86.1	66.3	78.3	96.1	48.7	77.4	95.3	55.4	79.6	92.4	49.3	
03	CONCRETE	102.3	53.5	78.5	91.9	63.4	78.0	88.9	66.1	77.8	94.8	46.5	71.3	94.4	54.7	75.0	87.5	51.9	
04	MASONRY	119.9	48.8	76.5	96.6	63.7	76.6	86.2	59.2	69.7	103.1	57.5	75.3	103.1	58.3	75.8	99.7	47.8	
05	METALS	90.7	87.9	89.8	97.8	89.5	95.0	97.8	88.7	94.8	99.3	68.9	89.2	99.3	68.6	89.2	95.5	64.8	
06	WOOD, PLASTICS & COMPOSITES	82.6	38.5	57.1	100.8	61.2	78.0	99.8	65.0	79.8	99.6	38.7	64.4	98.1	56.5	74.1	94.3	56.8	
07	THERMAL & MOISTURE PROTECTION	90.8	49.4	74.0	90.2	64.8	79.9	93.9	61.9	80.9	97.4	51.0	78.5	97.4	54.2	79.8	86.7	53.1	
08	OPENINGS	92.0	45.8	80.4	101.4	61.7	91.4	99.6	64.1	90.6	92.6	42.1	79.9	92.6	53.7	82.8	98.2	54.2	
0920	Plaster & Gypsum Board	85.5	37.0	50.9	91.7	60.4	69.3	92.1	64.3	72.3	82.8	37.3	50.3	84.4	55.7	63.9	81.5	58.8	
0950, 0980	Ceilings & Acoustic Treatment	82.9	37.0	52.6	99.8	60.4	73.7	94.7	64.3	74.6	92.0	37.3	55.9	92.0	55.7	68.0	93.7	58.8	
0960	Flooring	96.1	41.2	80.0	94.8	37.8	78.0	99.8	67.3	90.2	110.3	77.2	100.6	110.1	77.2	100.5	95.9	48.8	
0970, 0990	Wall Finishes & Painting/Coating	94.6	52.3	68.5	99.3	55.3	72.2	102.2	68.9	81.7	94.7	51.8	68.2	94.7	51.1	67.8	92.2	42.1	
09	FINISHES	96.5	40.5	65.2	96.3	55.1	73.3	98.3	64.9	79.7	94.9	47.5	68.5	96.2	58.1	74.5	90.4	49.3	
COVERS	DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	29.5	86.0	100.0	81.1	96.2	100.0	81.8	96.4	100.0	76.2	95.3	100.0	71.3	94.3	100.0	80.3	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	96.9	71.8	86.8	100.0	70.2	87.9	100.0	77.3	90.8	100.3	45.2	78.0	100.2	51.2	80.3	100.1	96.3	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	96.5	66.8	81.2	103.7	65.9	84.2	95.6	61.9	78.2	97.3	50.5	73.1	99.5	67.1	82.8	96.4	68.3	
MF2010	WEIGHTED AVERAGE	97.1	61.8	81.6	98.2	69.6	85.6	96.8	72.2	86.0	97.7	54.2	78.6	98.1	61.0	81.7	96.1	88.8	

Cost Indexes

DIVISION		TEXAS																	
		BEAUMONT			BROWNWOOD			BRYAN			CHILDRESS			CORPUS CHRISTI			DALLAS		
		776 - 777			768			778			792			783 - 784			752 - 753		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		89.8	89.8		88.9	88.9		89.8	89.8		88.9	88.9		95.7	95.7		98.0	98.0	
34 SITE & INFRASTRUCTURE, DEMOLITION	86.6	86.3	86.4	101.1	85.5	90.3	78.2	87.9	84.9	106.1	85.9	92.1	137.0	82.6	99.5	109.8	87.3	94.2	
Concrete Forming & Accessories	101.5	50.1	56.8	93.6	34.1	41.8	81.2	41.6	46.8	93.7	61.5	65.7	96.4	38.1	45.7	93.9	64.3	68.1	
Concrete Reinforcing	91.2	42.7	66.7	94.1	49.1	71.4	93.7	48.9	71.1	93.9	49.3	71.4	88.2	47.3	67.6	101.0	52.3	76.5	
Cast-in-Place Concrete	86.3	53.1	73.2	103.7	43.8	80.1	69.1	66.0	67.9	98.6	50.1	79.5	102.5	46.2	80.3	96.5	56.2	80.6	
CONCRETE	93.0	50.7	72.4	102.2	41.5	72.6	78.1	52.6	65.7	103.2	55.9	80.2	95.3	44.5	70.5	97.3	60.6	79.4	
MASONRY	104.5	58.5	76.5	132.2	50.2	82.2	143.7	57.2	90.9	107.8	51.5	73.4	88.8	49.3	64.7	102.6	58.4	75.6	
METALS	97.0	65.3	86.5	96.9	62.5	85.6	96.5	68.2	87.1	96.7	64.4	86.0	95.1	75.2	88.5	100.4	79.9	93.6	
WOOD, PLASTICS & COMPOSITES	111.8	50.2	76.2	98.3	30.2	59.0	78.2	34.9	53.2	99.0	66.6	80.3	113.9	37.3	69.7	98.2	67.2	80.3	
THERMAL & MOISTURE PROTECTION	103.6	56.8	84.6	97.5	45.7	76.4	96.1	56.9	80.1	98.0	50.3	78.6	95.4	46.1	75.4	92.6	64.0	81.0	
OPENINGS	95.9	46.8	83.5	88.6	37.5	75.7	97.6	43.0	83.9	89.6	55.9	81.1	105.0	38.6	88.3	100.7	58.4	90.1	
Plaster & Gypsum Board	95.1	49.3	62.4	81.7	28.6	43.8	83.6	33.4	47.8	81.7	66.1	70.5	86.3	35.8	50.2	88.7	66.6	72.9	
Ceilings & Acoustic Treatment	99.7	49.3	66.4	88.4	28.6	48.9	93.0	33.4	53.7	88.4	66.1	73.6	93.7	35.8	55.4	94.6	66.6	76.1	
Flooring	109.1	74.6	99.0	109.2	46.8	90.9	82.1	55.2	74.2	108.2	42.8	89.0	109.0	66.0	96.4	99.3	50.0	84.8	
Wall Finishes & Painting/Coating	91.8	50.2	66.1	94.7	30.2	54.9	89.0	62.4	72.6	94.7	39.9	60.9	104.7	59.6	76.8	103.0	53.2	72.3	
FINISHES	91.2	54.3	70.6	94.3	35.2	61.3	79.8	44.5	60.1	94.8	56.8	73.6	96.7	44.9	68.7	97.7	60.8	77.1	
DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	79.6	95.9	100.0	39.2	87.9	100.0	78.8	95.8	100.0	73.4	94.7	100.0	77.0	95.4	100.0	82.1	96.4	
FIRE SUPPRESSION, PLUMBING & HVAC	100.1	59.3	83.6	94.3	48.4	75.7	94.1	66.4	82.9	94.3	52.7	77.5	100.1	40.1	75.8	100.0	63.7	85.3	
ELECTRICAL, COMMUNICATIONS & UTIL.	94.8	72.6	83.4	93.3	45.4	68.6	92.9	67.4	79.8	97.3	45.1	70.3	92.7	54.7	73.1	95.5	67.6	81.1	
WEIGHTED AVERAGE	97.2	62.0	81.7	97.7	49.0	76.2	94.3	61.7	79.9	97.3	57.2	79.6	98.9	52.3	78.4	99.4	66.8	85.0	
DIVISION		TEXAS																	
		DEL RIO			DENTON			EASTLAND			EL PASO			FORT WORTH			GALVESTON		
		788			762			764			798 - 799.885			760 - 761			775		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		88.6	88.6		94.7	94.7		88.9	88.9		88.9	88.9		88.9	88.9		98.5	98.5	
34 SITE & INFRASTRUCTURE, DEMOLITION	117.8	85.1	95.2	101.7	78.7	85.9	104.0	85.4	91.2	92.4	85.4	87.6	97.1	86.4	89.7	107.8	85.7	92.6	
Concrete Forming & Accessories	91.2	37.7	44.7	99.0	33.5	42.0	94.2	37.1	44.5	94.4	45.0	51.4	91.3	63.7	67.3	89.8	61.9	65.5	
Concrete Reinforcing	88.8	44.3	66.4	95.5	50.3	72.7	94.3	49.0	71.5	93.8	47.2	70.3	93.8	52.2	72.8	93.1	64.0	78.4	
Cast-in-Place Concrete	110.4	43.7	84.1	80.2	45.7	66.6	109.6	44.5	83.9	89.8	41.8	70.9	99.0	52.1	80.5	91.7	67.1	82.0	
CONCRETE	112.3	42.1	78.1	80.7	42.9	62.3	106.9	43.0	75.8	91.6	45.3	69.0	96.0	58.2	77.6	94.4	65.6	80.4	
MASONRY	103.6	51.9	72.0	140.8	48.6	84.6	101.6	50.1	70.2	100.8	47.9	68.5	97.3	58.3	73.5	99.9	57.2	73.9	
METALS	94.0	59.6	82.6	96.5	75.6	89.6	96.7	62.9	85.6	99.0	63.4	87.3	96.3	68.7	87.2	98.0	87.1	94.4	
WOOD, PLASTICS & COMPOSITES	93.7	35.9	60.3	107.9	33.1	64.7	105.3	34.0	64.1	99.2	47.5	69.3	100.9	67.1	81.4	95.3	61.8	76.0	
THERMAL & MOISTURE PROTECTION	92.3	45.2	73.2	96.0	45.6	75.5	97.9	44.9	76.3	93.6	53.8	77.4	98.3	54.2	80.3	95.3	65.2	83.1	
OPENINGS	99.0	34.2	82.6	102.7	38.2	86.4	76.9	39.5	67.5	92.6	43.6	80.3	86.7	58.3	79.5	102.3	61.6	92.0	
Plaster & Gypsum Board	80.9	34.4	47.7	85.3	31.4	46.8	81.7	32.4	46.5	87.4	46.4	58.1	85.4	66.6	72.0	89.9	61.1	69.3	
Ceilings & Acoustic Treatment	89.2	34.4	53.0	92.9	31.4	52.3	88.4	32.4	51.4	92.0	46.4	61.9	93.8	66.6	75.8	95.7	61.1	72.8	
Flooring	92.8	35.7	76.0	101.7	44.8	85.0	143.0	46.8	114.7	110.3	65.3	97.1	144.3	42.6	114.5	95.7	55.2	83.8	
Wall Finishes & Painting/Coating	92.2	26.5	51.7	104.7	30.5	59.0	96.2	31.5	56.3	94.7	36.0	58.5	96.2	52.7	69.3	99.2	48.5	67.9	
FINISHES	90.6	35.8	60.0	90.7	34.6	59.4	104.7	37.5	67.2	95.1	47.9	68.8	106.0	59.2	79.9	89.3	58.8	72.3	
DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	39.0	87.9	100.0	37.8	87.6	100.0	40.3	88.1	100.0	77.9	95.6	100.0	81.8	96.4	100.0	83.6	96.7	
FIRE SUPPRESSION, PLUMBING & HVAC	94.1	46.3	74.7	94.3	39.8	72.2	94.3	48.7	75.8	100.2	35.4	73.9	100.2	59.1	83.5	94.1	65.9	82.7	
ELECTRICAL, COMMUNICATIONS & UTIL.	94.1	31.2	61.7	95.8	45.5	69.9	93.2	45.4	68.5	93.9	53.3	72.9	93.4	62.4	77.4	94.5	67.3	80.4	
WEIGHTED AVERAGE	98.0	46.5	75.3	97.1	47.8	75.4	96.5	49.7	75.9	96.8	51.2	76.7	97.2	63.2	82.2	96.5	68.2	84.0	
DIVISION		TEXAS																	
		GIDDINGS			GREENVILLE			HOUSTON			HUNTSVILLE			LAREDO			LONGVIEW		
		789			754			770 - 772			773			780			756		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		88.6	88.6		95.6	95.6		98.4	98.4		89.8	89.8		88.6	88.6		90.5	90.5	
34 SITE & INFRASTRUCTURE, DEMOLITION	103.3	85.4	90.9	102.5	82.2	88.5	106.0	85.5	91.9	94.1	86.0	88.5	96.9	86.6	89.8	97.8	89.3	91.9	
Concrete Forming & Accessories	89.4	57.6	61.7	86.6	28.2	35.8	91.7	62.0	65.9	87.7	57.1	61.1	91.2	38.3	45.2	83.7	29.0	36.2	
Concrete Reinforcing	89.4	46.2	67.6	101.6	25.6	63.3	92.9	64.5	78.6	94.0	48.3	70.9	88.8	47.2	67.9	100.4	23.4	61.6	
Cast-in-Place Concrete	93.5	44.1	74.1	87.9	38.2	68.3	88.9	67.1	80.3	95.0	48.5	76.7	78.9	59.2	71.2	102.2	35.8	76.0	
CONCRETE	91.2	51.4	71.8	90.1	33.2	62.4	92.1	65.8	79.3	100.4	53.3	77.4	85.8	48.3	67.5	105.5	31.7	69.5	
MASONRY	111.6	52.9	75.2	160.5	47.4	91.5	99.7	67.2	79.9	142.0	43.8	82.1	97.3	47.4	66.9	156.1	43.7	87.5	
METALS	93.4	61.9	83.0	97.7	63.6	86.4	101.0	88.0	96.7	96.4	63.8	85.6	96.5	63.8	85.7	91.2	51.2	78.0	
WOOD, PLASTICS & COMPOSITES	92.7	61.8	74.8	89.6	27.3	53.6	97.5	61.8	76.9	86.1	60.4	71.2	93.7	37.2	61.1	83.9	29.5	52.5	
THERMAL & MOISTURE PROTECTION	92.9	49.4	75.2	92.7	40.8	71.6	94.9	67.5	83.8	97.0	47.4	76.9	91.3	49.4	74.3	93.9	36.2	70.5	
OPENINGS	98.2	50.2	86.1	99.5	26.9	81.2	104.5	61.6	93.7	97.6	49.3	85.5	98.8	39.2	83.8	90.5	26.9	74.5	
Plaster & Gypsum Board	79.5	61.1	66.4	82.8	25.5	41.8	92.8	61.1	70.2	87.2	59.7	67.6	82.2	35.8	49.1	80.6	27.9	42.9	
Ceilings & Acoustic Treatment	89.2	61.1	70.6	90.1	25.5	47.4	101.1	61.1	74.7	93.0	59.7	71.0	93.7	35.8	55.4	87.3	27.9	48.1	
Flooring	92.8	35.7	76.0	95.0	49.1	81.5	97.0	55.2	84.7	85.6	35.7	70.9	92.7	66.0	84.9	100.6	36.1	81.6	
Wall Finishes & Painting/Coating	92.2	31.5	54.8	103.0	25.9	55.5	99.2	62.4	76.5	89.0	32.3	54.0	92.2	56.1	69.9	94.6	30.3	54.9	
FINISHES	89.2	52.0	68.4	94.1	31.4	59.2	97.1	60.4	76.6	82.3	51.7	65.2	89.9	44.4	64.5	99.7	30.4	61.0	
DVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	45.2	89.1	100.0	36.1	87.3	100.0	83.6	96.7	100.0	45.4	89.1	100.0	74.9	95.0	100.0	22.9	84.7	
FIRE SUPPRESSION, PLUMBING & HVAC	94.1	60.1	80.3	94.1	45.7	74.5	100.0	66.6	86.5	94.1	61.0	80.7	100.0	38.8	75.2	94.1	28.9	67.6	
ELECTRICAL, COMMUNICATIONS & UTIL.	91.1	45.1	67.3	92.2	28.1	59.1	96.5	67.5	81.5	92.9	45.1	68.2	94.3	62.2	77.7	92.4	45.6	68.3	
WEIGHTED AVERAGE	95.1	56.2	77.9	96.6	43.3	74.2	99.1	69.8	86.2	97.5	55.9	79.2	96.8	52.7	76.8	98.6	40.4	72.9	

City Cost Indexes

DIVISION	TEXAS																	
	LUBBOCK			LUFKIN			MCALLEN			MCKINNEY			MIDLAND			ODESSA		
	793 - 794			759			785			750			797			797		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT																	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																	
0310	Concrete Forming & Accessories																	
0320	Concrete Reinforcing																	
0330	Cast-in-Place Concrete																	
03	CONCRETE																	
04	MASONRY																	
05	METALS																	
06	WOOD, PLASTICS & COMPOSITES																	
07	THERMAL & MOISTURE PROTECTION																	
08	OPENINGS																	
0920	Plaster & Gypsum Board																	
0950, 0980	Ceilings & Acoustic Treatment																	
0960	Flooring																	
0970, 0990	Wall Finishes & Painting/Coating																	
09	FINISHES																	
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																	
MF2010	WEIGHTED AVERAGE																	

DIVISION	TEXAS																	
	PALESTINE			SAN ANGELO			SAN ANTONIO			TEMPLE			TEXARKANA			TYLER		
	758			769			781 - 782			765			755			757		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT																	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																	
0310	Concrete Forming & Accessories																	
0320	Concrete Reinforcing																	
0330	Cast-in-Place Concrete																	
03	CONCRETE																	
04	MASONRY																	
05	METALS																	
06	WOOD, PLASTICS & COMPOSITES																	
07	THERMAL & MOISTURE PROTECTION																	
08	OPENINGS																	
0920	Plaster & Gypsum Board																	
0950, 0980	Ceilings & Acoustic Treatment																	
0960	Flooring																	
0970, 0990	Wall Finishes & Painting/Coating																	
09	FINISHES																	
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																	
MF2010	WEIGHTED AVERAGE																	

DIVISION	TEXAS																		UTAH	
	VICTORIA			WACO			WAXAHACHIE			WHARTON			WICHITA FALLS			LOGAN				
	779			766 - 767			751			774			763			843				
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL		
015433	CONTRACTOR EQUIPMENT																			
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																			
0310	Concrete Forming & Accessories																			
0320	Concrete Reinforcing																			
0330	Cast-in-Place Concrete																			
03	CONCRETE																			
04	MASONRY																			
05	METALS																			
06	WOOD, PLASTICS & COMPOSITES																			
07	THERMAL & MOISTURE PROTECTION																			
08	OPENINGS																			
0920	Plaster & Gypsum Board																			
0950, 0980	Ceilings & Acoustic Treatment																			
0960	Flooring																			
0970, 0990	Wall Finishes & Painting/Coating																			
09	FINISHES																			
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																			
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																			
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																			
MF2010	WEIGHTED AVERAGE																			

Cost Indexes

DIVISION				UTAH												VERMONT					
				OGDEN			PRICE			PROVO			SALT LAKE CITY			BELLINGS FALLS			BENNINGTON		
				842,844			845			846- 847			840- 841			051			052		
				MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		98.6	98.6		97.6	97.6		97.6	97.6		98.6	98.6		100.4	100.4		100.4	100.4			
34 SITE & INFRASTRUCTURE, DEMOLITION	78.7	98.4	92.3	88.4	96.7	94.1	87.1	96.7	93.7	78.3	98.3	92.1	81.9	97.8	92.8	81.3	97.5	92.5			
Concrete Forming & Accessories	105.5	60.2	66.1	107.4	51.0	58.4	106.6	60.1	66.1	107.9	60.1	66.3	99.3	48.8	55.4	97.2	53.0	58.8			
Concrete Reinforcing	99.9	75.9	87.8	107.5	75.7	91.5	108.4	75.8	92.0	102.1	75.8	88.9	82.9	63.7	73.2	82.9	63.6	73.2			
Casht-Place Concrete	87.3	72.1	81.3	86.0	61.7	76.4	86.0	72.0	80.5	95.4	72.0	86.2	96.9	71.2	86.8	96.9	67.9	85.5			
CONCRETE	95.8	67.8	82.2	106.6	60.1	84.0	105.2	67.7	86.9	114.2	67.7	91.5	100.9	60.0	81.0	100.7	60.7	81.2			
MASONRY	100.3	62.0	76.9	112.2	62.0	81.6	112.3	62.0	81.6	114.0	62.0	82.3	93.6	60.6	73.5	102.3	60.5	76.8			
METALS	100.4	76.8	92.6	97.1	76.1	90.2	98.1	76.7	91.1	105.0	76.7	95.6	92.5	69.6	85.0	92.5	68.7	84.7			
WOOD, PLASTICS & COMPOSITES	79.9	58.4	67.5	82.5	47.1	62.1	81.2	58.4	68.0	81.5	58.4	68.2	99.5	38.4	64.2	96.7	44.9	66.8			
THERMAL & MOISTURE PROTECTION	98.5	63.7	84.4	101.4	59.4	84.4	101.4	63.7	86.1	105.1	63.7	88.3	100.7	59.6	84.0	100.7	54.7	82.0			
OPENINGS	91.7	57.6	83.1	96.2	50.3	84.6	96.2	57.6	86.5	93.7	57.6	84.6	99.2	41.1	84.5	99.2	43.4	85.1			
Plaster & Gypsum Board	81.4	57.0	64.0	83.7	45.3	56.3	81.9	57.0	64.1	84.4	57.0	64.8	96.5	35.8	53.1	94.2	42.5	57.3			
Ceilings & Acoustic Treatment	109.7	57.0	74.9	109.7	45.3	67.2	109.7	57.0	74.9	103.6	57.0	72.8	92.7	35.8	55.1	92.7	42.5	59.5			
Flooring	98.5	50.0	84.2	101.8	37.1	82.8	101.4	50.0	86.3	102.1	50.0	86.8	94.5	31.9	76.1	93.4	31.9	75.3			
Wall Finishes & Painting/Coating	98.8	62.0	76.1	98.8	39.6	62.3	98.8	50.6	69.1	101.9	50.6	70.2	90.1	28.1	51.9	90.1	28.1	51.9			
FINISHES	98.6	57.8	75.9	101.8	46.1	70.7	101.3	56.6	76.4	99.4	56.6	75.5	95.6	42.0	65.7	95.0	45.9	67.6			
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	57.0	91.5	100.0	49.5	90.0	100.0	57.0	91.4	100.0	57.0	91.4	100.0	45.9	89.2	100.0	46.5	89.4			
FIRE SUPPRESSION, PLUMBING & HVAC	100.0	71.3	88.4	97.0	68.8	85.6	100.0	71.3	88.4	100.1	71.3	88.4	94.1	95.7	94.7	94.1	89.5	92.2			
ELECTRICAL, COMMUNICATIONS & UTIL.	94.8	73.7	83.9	100.0	73.7	86.4	95.4	63.5	78.9	97.8	63.5	80.1	102.0	94.8	98.3	102.0	64.9	82.8			
WEIGHTED AVERAGE	97.3	70.0	85.3	99.5	65.9	84.7	99.7	68.3	85.8	101.6	68.4	86.9	96.5	72.7	86.0	96.8	67.8	84.0			
DIVISION				VERMONT												VERMONT					
				BRATTLEBORO			BURLINGTON			GUILDHALL			MONTPELIER			RUTLAND			ST. JOHNSBURY		
				053			054			059			056			057			058		
				MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		100.4	100.4		100.4	100.4		100.4	100.4		100.4	100.4		100.4	100.4		100.4	100.4			
34 SITE & INFRASTRUCTURE, DEMOLITION	82.9	97.8	93.1	83.8	96.5	92.5	80.9	95.8	91.1	84.8	96.5	92.9	84.8	96.5	92.8	80.9	96.0	91.3			
Concrete Forming & Accessories	99.6	48.7	55.3	96.8	51.3	57.3	97.6	43.8	50.8	101.5	51.4	57.9	99.8	51.4	57.7	96.5	43.9	50.7			
Concrete Reinforcing	82.0	63.7	72.8	103.6	82.7	93.1	83.6	37.7	60.4	82.5	82.7	82.6	103.6	82.7	93.1	82.0	42.9	62.3			
Casht-Place Concrete	100.0	68.3	87.5	105.7	98.9	103.0	94.0	54.9	78.6	111.9	98.9	106.8	95.0	98.9	96.5	94.0	55.2	78.7			
CONCRETE	103.3	59.0	81.7	109.4	74.2	92.2	98.3	47.4	73.5	109.5	74.2	92.3	104.1	74.2	89.6	98.0	48.4	73.8			
MASONRY	101.3	60.6	76.4	104.9	49.1	70.8	101.5	39.0	63.4	89.6	49.1	64.9	85.0	49.1	63.1	126.1	39.1	73.0			
METALS	92.5	69.5	84.9	99.7	78.9	92.8	92.5	58.5	81.3	92.5	78.9	88.0	98.0	78.9	91.7	92.5	59.0	81.5			
WOOD, PLASTICS & COMPOSITES	99.8	38.4	64.3	94.7	50.7	69.3	96.2	44.9	66.6	98.8	50.7	71.0	99.9	50.7	71.5	92.3	44.9	64.9			
THERMAL & MOISTURE PROTECTION	100.8	53.6	81.6	100.7	59.7	84.0	100.6	41.4	76.5	100.1	60.1	83.9	100.9	60.1	84.3	100.5	41.4	76.5			
OPENINGS	99.2	41.1	84.5	102.4	52.5	89.9	99.2	38.2	83.8	99.2	52.5	87.4	102.4	52.5	89.9	99.2	38.2	83.8			
Plaster & Gypsum Board	96.5	35.8	53.1	98.1	48.5	62.7	102.4	42.5	59.6	105.6	48.5	64.8	97.3	48.5	62.5	105.2	42.5	60.4			
Ceilings & Acoustic Treatment	92.7	35.8	55.1	94.8	48.5	64.2	92.7	42.5	59.5	91.8	48.5	63.2	97.5	48.5	65.1	92.7	42.5	59.5			
Flooring	94.6	31.9	76.2	94.7	57.7	83.8	97.7	31.9	78.4	101.3	57.7	88.5	94.5	57.7	83.7	101.3	31.9	80.9			
Wall Finishes & Painting/Coating	90.1	28.1	51.9	90.1	32.7	54.7	90.1	21.8	48.0	90.1	32.7	54.7	90.1	32.7	54.7	90.1	22.9	48.7			
FINISHES	95.7	42.0	65.8	96.4	49.3	70.1	97.1	39.4	64.9	98.5	49.3	71.1	96.8	49.3	70.3	98.5	39.6	65.6			
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	45.9	89.2	100.0	70.6	94.1	100.0	38.6	87.8	100.0	70.6	94.1	100.0	70.6	94.1	100.0	38.6	87.8			
FIRE SUPPRESSION, PLUMBING & HVAC	94.1	97.8	95.6	99.9	62.1	84.5	94.1	60.4	80.4	93.9	62.1	81.0	100.0	62.1	84.6	94.1	60.4	80.4			
ELECTRICAL, COMMUNICATIONS & UTIL.	102.0	94.8	98.3	99.4	64.9	81.6	102.0	64.9	82.8	100.7	64.9	82.2	102.0	64.9	82.9	102.0	64.9	82.8			
WEIGHTED AVERAGE	97.2	72.9	86.5	100.6	65.4	85.1	96.6	55.0	78.3	97.4	65.4	83.3	99.2	65.4	84.3	97.9	55.2	79.1			
DIVISION				VERMONT												VIRGINIA					
				WHITE RIVER JCT.			ALEXANDRIA			ARLINGTON			BRISTOL			CHARLOTTEVILLE			CULPEPER		
				050			223			222			242			229			227		
				MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		100.4	100.4		101.1	101.1		99.9	99.9		99.9	99.9		104.0	104.0		99.9	99.9			
34 SITE & INFRASTRUCTURE, DEMOLITION	85.4	95.9	92.7	118.6	88.3	97.7	130.3	85.1	99.2	113.8	84.7	93.7	119.2	86.7	96.8	116.8	85.5	95.2			
Concrete Forming & Accessories	94.8	42.1	49.0	89.8	75.3	77.2	89.3	71.8	74.1	85.7	44.1	49.5	84.2	50.2	54.6	81.7	70.4	71.9			
Concrete Reinforcing	82.9	37.6	60.1	83.6	79.9	81.7	94.4	71.6	82.9	94.3	68.5	81.3	93.7	69.4	81.5	94.4	65.7	79.9			
Casht-Place Concrete	100.0	54.7	82.1	122.1	83.8	107.0	118.8	79.2	103.2	118.3	48.9	91.0	123.1	57.0	97.0	121.6	66.3	99.8			
CONCRETE	105.2	46.6	76.6	111.6	80.1	96.2	115.8	75.0	95.9	112.2	52.2	83.0	113.3	57.9	86.3	110.3	69.0	90.2			
MASONRY	113.5	37.8	67.3	93.7	72.5	80.7	107.7	66.1	82.3	95.8	41.5	62.7	121.9	48.0	76.8	109.7	61.8	80.5			
METALS	92.5	58.7	81.4	95.8	94.2	95.3	94.5	81.8	90.3	93.3	85.4	90.7	93.6	88.0	91.8	93.7	80.6	89.4			
WOOD, PLASTICS & COMPOSITES	93.7	43.2	64.5	95.7	74.4	83.4	92.9	74.4	82.2	85.9	42.4	60.8	84.5	48.3	63.6	83.2	74.4	78.1			
THERMAL & MOISTURE PROTECTION	100.9	36.6	74.7	99.0	80.9	91.6	101.0	68.6	87.8	100.5	48.1	79.2	100.1	53.5	81.2	100.3	62.0	84.7			
OPENINGS	99.2	39.5	84.1	97.3	75.4	91.8	95.2	69.4	88.7	98.6	48.4	86.0	96.6	53.3	85.7	96.9	65.0	88.9			
Plaster & Gypsum Board	92.4	40.7	56.5	110.4	73.5	84.0	107.8	73.5	83.3	103.4	40.5	58.4	103.4	45.9	62.3	103.7	73.5	82.1			
Ceilings & Acoustic Treatment	92.7	40.7	58.4	97.3	73.5	81.6	94.6	73.5	80.6	93.7	40.5	58.5	93.7	45.9	62.1	94.6	73.5	80.6			
Flooring	92.3	31.9	74.6	107.3	86.1	101.1	105.6	63.4	93.2	101.8	39.2	83.4	100.3	46.2	84.4	100.3	63.4	89.5			
Wall Finishes & Painting/Coating	90.1	19.1	46.3	130.0	81.1	99.8	130.0	81.1	99.8	114.8	43.8	71.0	114.8	62.0	82.2	130.0	55.1	83.8			
FINISHES	94.8	37.9	63.1	104.4	77.4	89.3	104.5	71.9	86.3	100.8	42.4	68.2	100.4	49.9	72.2	101.1	68.8	83.1			
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	38.2	87.7	100.0	89.3	97.9	100.0	70.2	94.1	100.0	73.2	94.1	100.0	73.1	94.6	100.0	70.9	92.0			
FIRE SUPPRESSION, PLUMBING & HVAC	94.1	60.0	80.2	100.2	88.8	95.6	100.2	84.6	93.9	94.3	53.8	77.9	94.3	56.9	79.1	94.3	62.8	81.5			
ELECTRICAL, COMMUNICATIONS & UTIL.	102.0	64.9	82.8	96.3	102.5	99.5	94.0	98.3	96.2	96.0	37.6	65.9	95.9	71.0	83.1	98.4	55.4	76.2			
WEIGHTED AVERAGE	98.0	54.4	78.8	100.6	86.0	94.2	101.6	79.9	92.0	98.6	54.3	79.1	100.0	62.8	83.6	99.3	67.0	85.1			

City Cost Indexes

DIVISION	VIRGINIA																	
	FAIRFAX			FARMVILLE			FREDERICKSBURG			GRUNDY			HARRISONBURG			LYNCHBURG		
	220 - 221			239			224 - 225			246			228			245		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT																	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																	
0310	Concrete Forming & Accessories																	
0320	Concrete Reinforcing																	
0330	Cast-in-Place Concrete																	
03	CONCRETE																	
04	MASONRY																	
05	METALS																	
06	WOOD, PLASTICS & COMPOSITES																	
07	THERMAL & MOISTURE PROTECTION																	
08	OPENINGS																	
0920	Plaster & Gypsum Board																	
0950, 0980	Ceilings & Acoustic Treatment																	
0960	Flooring																	
0970, 0990	Wall Finishes & Painting/Coating																	
09	FINISHES																	
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																	
MF2010	WEIGHTED AVERAGE																	

DIVISION	VIRGINIA																	
	NEWPORT NEWS			NORFOLK			PETERSBURG			PORTSMOUTH			PULASKI			RICHMOND		
	236			233 - 235			238			237			243			230 - 232		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT																	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																	
0310	Concrete Forming & Accessories																	
0320	Concrete Reinforcing																	
0330	Cast-in-Place Concrete																	
03	CONCRETE																	
04	MASONRY																	
05	METALS																	
06	WOOD, PLASTICS & COMPOSITES																	
07	THERMAL & MOISTURE PROTECTION																	
08	OPENINGS																	
0920	Plaster & Gypsum Board																	
0950, 0980	Ceilings & Acoustic Treatment																	
0960	Flooring																	
0970, 0990	Wall Finishes & Painting/Coating																	
09	FINISHES																	
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																	
MF2010	WEIGHTED AVERAGE																	

DIVISION	VIRGINIA																	
	ROANOKE			STAUNTON			WINCHESTER			CLARKSTON			WASHINGTON			OLYMPIA		
	240 - 241			244			226			994			982			985		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT																	
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION																	
0310	Concrete Forming & Accessories																	
0320	Concrete Reinforcing																	
0330	Cast-in-Place Concrete																	
03	CONCRETE																	
04	MASONRY																	
05	METALS																	
06	WOOD, PLASTICS & COMPOSITES																	
07	THERMAL & MOISTURE PROTECTION																	
08	OPENINGS																	
0920	Plaster & Gypsum Board																	
0950, 0980	Ceilings & Acoustic Treatment																	
0960	Flooring																	
0970, 0990	Wall Finishes & Painting/Coating																	
09	FINISHES																	
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46																	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC																	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.																	
MF2010	WEIGHTED AVERAGE																	

Cost Indexes

DIVISION	WASHINGTON																	
	RICHLAND			SEATTLE			SPOKANE			TACOMA			VANCOUVER			WENATCHEE		
	993			980 - 981,987			990 - 992			983 - 984			986			988		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		91.0	91.0		103.9	103.9		91.0	91.0		104.1	104.1		98.8	98.8		104.1	104.1
SITE & INFRASTRUCTURE, DEMOLITION	98.0	91.3	93.4	97.0	111.1	106.7	97.4	91.3	93.1	96.1	112.9	107.7	107.4	100.2	102.5	107.0	111.5	110.1
Concrete Forming & Accessories	125.0	79.9	85.7	105.2	100.3	100.9	129.2	79.7	86.1	105.2	99.5	100.2	106.3	86.6	89.2	106.6	78.0	81.7
Concrete Reinforcing	102.3	84.6	93.4	115.1	103.1	109.1	103.0	84.6	93.7	115.1	103.0	109.0	116.1	102.7	109.4	116.1	91.2	103.6
Cas-in-Place Concrete	102.7	84.5	95.5	106.0	106.3	106.1	106.7	84.4	97.9	103.9	106.0	104.7	116.0	103.1	109.8	106.0	79.4	95.5
CONCRETE	99.0	82.4	90.9	101.2	102.5	101.8	101.4	82.2	92.1	100.1	101.9	101.0	110.1	94.3	102.4	107.3	81.1	94.5
MASONRY	105.0	81.9	90.9	116.4	99.3	106.0	105.6	81.9	91.2	116.2	99.3	105.9	117.3	95.8	104.1	119.0	81.3	96.0
METALS	87.6	82.9	86.1	102.5	95.1	100.1	89.9	82.7	87.6	102.5	93.0	99.4	100.0	93.5	97.8	100.0	86.7	95.6
WOOD, PLASTICS & COMPOSITES	101.2	78.7	88.2	97.9	99.0	98.5	109.7	78.7	91.8	96.5	99.0	98.0	88.4	83.7	85.7	97.6	76.5	85.4
THERMAL & MOISTURE PROTECTION	152.4	78.6	122.4	102.3	99.1	101.0	148.9	79.5	120.6	102.2	96.8	100.0	102.7	91.2	98.0	102.8	79.8	93.5
OPENINGS	109.0	72.5	99.8	103.4	100.2	102.6	109.6	72.9	100.3	101.8	100.2	101.4	99.5	90.0	97.1	101.3	72.9	94.1
Plaster & Gypsum Board	130.2	77.9	92.8	109.6	98.9	101.9	130.6	77.9	92.9	112.5	98.9	102.8	110.2	83.4	91.0	114.1	75.7	86.7
Ceilings & Acoustic Treatment	104.4	77.9	86.9	110.3	98.9	102.7	101.4	77.9	85.8	110.5	98.9	102.8	105.2	83.4	90.8	103.0	75.7	85.0
Flooring	103.4	83.9	97.7	109.1	103.9	107.6	103.5	89.3	99.4	109.6	96.1	105.6	115.2	107.0	112.8	112.7	65.6	98.9
Wall Finishes & Painting/Coating	110.1	61.7	80.2	105.5	84.1	92.3	110.1	61.7	80.3	105.5	84.1	92.3	108.9	65.2	82.0	105.5	61.7	78.5
FINISHES	118.3	78.3	96.0	106.6	98.7	102.2	117.9	79.4	96.4	107.0	97.1	101.5	104.9	87.7	95.3	107.6	73.2	88.4
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	66.9	93.4	100.0	101.0	100.2	100.0	66.8	93.4	100.0	101.0	100.2	100.0	64.1	92.9	100.0	82.3	96.5
FIRE SUPPRESSION, PLUMBING & HVAC	100.4	100.1	100.3	100.0	122.1	109.0	100.3	89.0	95.7	100.1	90.9	96.4	100.2	93.0	97.3	94.1	85.4	90.6
ELECTRICAL, COMMUNICATIONS & UTIL.	97.1	93.1	95.1	103.6	107.9	105.8	95.1	79.1	86.8	103.6	97.0	100.2	108.5	98.0	103.1	104.4	80.2	91.9
WEIGHTED AVERAGE	102.1	86.8	95.4	102.5	106.3	104.2	102.5	82.7	93.7	102.2	97.9	100.3	103.5	93.0	98.8	101.8	83.6	93.8
DIVISION	WASHINGTON						WEST VIRGINIA											
	YAKIMA			BECKLEY			BLUEFIELD			BUCKHANNON			CHARLESTON			CLARKSBURG		
	989			258 - 259			247 - 248			262			250 - 253			263 - 264		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		104.1	104.1		99.9	99.9		99.9	99.9		99.9	99.9		99.9	99.9		99.9	99.9
SITE & INFRASTRUCTURE, DEMOLITION	98.9	112.3	108.2	104.9	86.9	92.5	104.7	86.9	92.4	111.5	86.7	94.4	102.7	88.4	92.9	112.1	86.7	94.6
Concrete Forming & Accessories	105.5	95.1	96.5	84.6	86.5	86.3	85.8	86.2	86.1	85.2	84.5	84.6	99.5	88.5	89.9	82.9	84.4	84.2
Concrete Reinforcing	115.7	91.3	103.4	92.7	84.2	88.4	92.7	66.3	79.4	93.3	83.1	88.2	94.0	84.4	89.2	93.3	83.7	88.4
Cas-in-Place Concrete	111.0	84.2	100.4	115.7	102.7	110.6	115.7	102.6	110.5	115.4	100.0	109.3	107.0	100.9	104.6	126.4	100.0	116.0
CONCRETE	104.9	90.3	97.8	106.5	92.3	99.6	106.6	88.8	97.9	109.5	90.3	100.2	103.3	92.6	98.1	114.6	90.4	102.8
MASONRY	109.5	81.3	92.3	99.4	89.6	93.5	94.2	89.6	91.4	105.6	86.9	94.2	96.2	91.5	93.3	108.1	86.9	95.2
METALS	100.7	87.0	96.2	93.6	95.2	94.1	93.6	88.7	91.9	93.7	95.7	94.4	95.8	96.4	96.0	93.7	95.8	94.4
WOOD, PLASTICS & COMPOSITES	97.0	99.0	98.2	86.0	87.8	87.1	87.7	87.8	87.8	87.0	83.3	84.9	102.6	87.8	94.1	83.9	83.3	83.6
THERMAL & MOISTURE PROTECTION	102.3	81.4	93.8	100.2	87.2	94.9	100.2	87.2	94.9	100.5	86.7	94.9	97.3	87.7	93.4	100.4	86.7	94.8
OPENINGS	101.3	81.7	96.4	98.0	81.2	93.7	98.8	77.1	93.4	98.9	78.5	93.8	98.5	81.2	94.2	98.9	80.5	94.2
Plaster & Gypsum Board	112.3	98.9	102.7	101.5	87.3	91.4	102.4	87.3	91.6	103.0	82.7	88.5	100.5	87.3	91.1	100.7	82.7	87.8
Ceilings & Acoustic Treatment	105.0	98.9	101.0	91.9	87.3	88.9	91.9	87.3	88.9	93.7	82.7	86.4	95.5	87.3	90.1	93.7	82.7	86.4
Flooring	110.8	60.7	96.1	98.9	110.4	102.3	99.5	110.4	102.7	99.2	104.1	100.6	107.3	110.4	108.2	98.0	104.1	99.8
Wall Finishes & Painting/Coating	105.5	61.7	78.5	114.8	36.9	66.7	114.8	36.9	66.7	114.8	89.3	99.0	114.8	89.5	99.2	114.8	89.3	99.0
FINISHES	106.4	85.5	94.8	98.6	86.4	91.8	98.9	86.4	91.9	99.9	88.4	93.5	101.2	92.7	96.5	99.2	88.4	93.2
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	98.2	99.6	100.0	57.3	91.5	100.0	57.2	91.5	100.0	94.6	98.9	100.0	95.6	99.1	100.0	94.6	98.9
FIRE SUPPRESSION, PLUMBING & HVAC	100.1	100.2	100.1	94.3	80.1	88.6	94.3	79.7	88.4	94.3	88.0	91.7	100.0	82.2	92.8	94.3	87.7	91.6
ELECTRICAL, COMMUNICATIONS & UTIL.	106.6	93.1	99.6	92.4	90.9	91.6	95.0	71.5	82.9	96.3	91.5	93.8	97.2	90.9	93.9	96.3	91.5	93.8
WEIGHTED AVERAGE	102.5	92.6	98.1	97.3	86.6	92.6	97.4	82.6	90.9	98.8	89.0	94.5	99.2	89.5	94.9	99.4	89.1	94.9
DIVISION	WASHINGTON						WEST VIRGINIA											
	GASSAWAY			HUNTINGTON			LEWISBURG			MARTINSBURG			MORGANTOWN			PARKERSBURG		
	266			255 - 257			249			254			265			261		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT		99.9	99.9		99.9	99.9		99.9	99.9		99.9	99.9		99.9	99.9		99.9	99.9
SITE & INFRASTRUCTURE, DEMOLITION	108.5	87.2	93.8	109.3	89.4	95.5	122.2	86.9	97.9	108.8	84.9	92.3	105.6	87.0	92.8	114.4	88.4	96.5
Concrete Forming & Accessories	84.7	84.6	84.6	95.4	91.3	91.8	83.2	86.2	85.8	84.6	76.9	77.9	83.2	84.1	84.0	86.9	86.0	86.1
Concrete Reinforcing	93.3	84.4	88.8	94.0	90.6	92.3	93.3	66.3	79.7	92.7	74.1	83.3	93.3	83.7	88.4	92.7	83.0	87.8
Cas-in-Place Concrete	120.8	100.1	112.6	126.2	105.1	117.9	115.8	102.6	110.6	121.2	89.7	108.8	115.3	99.9	109.2	117.9	91.5	107.5
CONCRETE	110.4	90.6	100.8	112.7	96.4	104.7	115.9	88.8	102.7	110.5	81.5	96.4	106.3	90.2	98.5	111.7	88.0	100.1
MASONRY	109.2	90.1	97.6	99.9	91.8	95.0	98.6	89.6	93.1	101.2	79.5	87.9	128.6	86.9	103.2	84.3	84.7	84.5
METALS	93.7	96.4	94.6	95.9	98.6	96.8	93.7	88.7	92.0	93.9	85.3	91.1	93.8	95.5	94.4	94.4	95.5	94.8
WOOD, PLASTICS & COMPOSITES	86.2	83.3	84.5	96.6	89.9	92.7	84.2	87.8	86.3	86.0	78.1	81.5	84.2	83.3	83.7	87.1	84.9	85.8
THERMAL & MOISTURE PROTECTION	100.2	87.5	95.1	100.3	88.4	95.5	101.1	87.2	95.5	100.4	72.7	89.2	100.3	86.7	94.8	100.1	86.0	94.4
OPENINGS	96.8	78.8	92.2	97.3	83.8	93.9	98.9	77.1	93.4	100.2	66.9	91.8	100.3	80.5	95.3	97.9	79.4	93.2
Plaster & Gypsum Board	102.1	82.7	88.2	109.3	89.5	95.2	100.7	87.3	91.1	102.1	77.3	84.4	100.7	82.7	87.8	103.4	84.3	89.7
Ceilings & Acoustic Treatment	93.7	82.7	86.4	93.7	89.5	90.9	93.7	87.3	89.5	93.7	77.3	82.9	93.7	82.7	86.4	93.7	84.3	87.5
Flooring	99.0	110.4	102.3	107.1	105.1	106.5	98.1	110.4	101.7	98.9	56.2	86.4	98.1	104.1	99.9	102.3	96.6	100.6
Wall Finishes & Painting/Coating	114.8	89.5	99.2	114.8	83.2	95.3	114.8	36.9	66.7	114.8	43.6	70.9	114.8	89.3	99.0	114.8	88.4	98.5
FINISHES	99.4	89.7	94.0	102.3	92.9	97.1	100.5	86.4	92.6	99.4	70.1	83.0	98.7	88.4	93.0	100.9	88.0	93.7
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	94.6	98.9	100.0	96.9	99.4	100.0	57.2	91.5	100.0	55.4	91.1	100.0	66.6	93.4	100.0	95.1	99.0
FIRE SUPPRESSION, PLUMBING & HVAC	94.3	88.8	92.1	100.2	84.4	93.8	94.3	80.0	88.5	94.3	82.6	89.6	94.3	87.6	91.6	100.2	87.8	95.1
ELECTRICAL, COMMUNICATIONS & UTIL.	96.3	90.9	93.5	96.0	93.9	94.9	92.4	71.5	81.6	98.0	81.6	89.6	96.5	91.5	93.9	96.4	90.3	93.3
WEIGHTED AVERAGE	98.7	89.8	94.8	100.6	91.4	96.6	99.1	82.7	91.9	98.9	79.1	90.2	99.5	88.2	94.5	99.6	88.4	94.7

City Cost Indexes

DIVISION		WEST VIRGINIA									WISCONSIN								
		PETERSBURG			ROMNEY			WHEELING			BELOIT			EAU CLAIRE			GREEN BAY		
		268			267			260			535			547			541 - 541		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		99.9	99.9		99.9	99.9		99.9	99.9		100.9	100.9		100.8	100.8		98.7	98.7
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	104.9	87.3	92.8	108.0	87.3	93.7	115.1	87.6	96.1	97.8	106.2	103.6	98.6	103.4	101.9	102.8	98.7	98.7
0310	Concrete Forming & Accessories	86.0	79.7	80.5	82.6	79.8	80.1	88.6	84.5	85.1	103.3	94.6	95.7	101.9	96.3	97.0	107.3	98.4	98.4
0320	Concrete Reinforcing	92.7	74.6	83.6	93.3	71.8	82.5	92.1	83.7	87.9	102.0	118.4	110.3	100.1	101.7	100.9	98.1	98.4	98.4
0330	Cast-in-Place Concrete	115.3	94.0	106.9	120.8	94.0	110.2	117.9	100.1	110.9	103.5	92.8	99.3	103.6	93.5	99.6	107.2	98.0	98.0
03	CONCRETE	106.4	84.5	95.7	110.3	84.1	97.5	111.7	90.5	101.3	99.7	98.6	99.2	101.1	96.6	98.9	104.0	98.4	98.4
04	MASONRY	101.2	86.9	92.5	99.0	83.7	89.7	108.9	86.9	95.5	104.6	93.9	98.1	92.6	97.9	95.8	124.4	97.2	97.2
05	METALS	93.8	91.8	93.2	93.9	90.8	92.9	94.6	95.9	95.0	95.9	108.3	100.0	95.7	102.8	98.1	97.9	98.0	98.0
06	WOOD, PLASTICS & COMPOSITES	88.0	78.1	82.3	83.3	78.1	80.3	88.6	83.3	85.5	101.5	97.0	98.9	108.3	97.1	101.8	109.3	97.1	97.1
07	THERMAL & MOISTURE PROTECTION	100.3	75.1	90.1	100.4	74.2	89.8	100.5	87.3	95.2	105.8	91.4	99.9	106.3	84.9	97.6	107.8	98.2	98.2
08	OPENINGS	100.3	73.8	93.6	100.2	73.1	93.4	98.8	80.5	94.2	102.1	105.3	102.9	99.6	95.9	98.7	97.8	98.6	98.6
0920	Plaster & Gypsum Board	103.0	77.3	84.6	100.3	77.3	83.8	103.4	82.7	88.6	100.3	97.3	98.1	105.2	97.3	99.5	96.6	97.3	97.3
0950, 0980	Ceilings & Acoustic Treatment	93.7	77.3	82.9	93.7	77.3	82.9	93.7	82.7	86.4	87.5	97.3	93.9	101.5	97.3	98.7	93.4	97.3	97.3
0960	Flooring	100.0	104.1	101.2	97.9	97.8	97.9	103.3	104.1	103.5	104.5	117.5	108.3	96.3	113.3	101.3	115.9	113.3	113.3
0970, 0990	Wall Finishes & Painting/Coating	114.8	89.3	99.0	114.8	89.3	99.0	114.8	89.3	99.0	91.9	97.4	95.3	88.4	91.1	90.1	98.0	98.0	98.0
09	FINISHES	99.5	85.4	91.6	98.9	84.1	90.6	101.2	88.4	94.1	100.3	99.3	99.7	99.7	99.3	99.5	104.0	97.8	97.8
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	66.0	93.2	100.0	64.0	98.8	100.0	96.2	99.2	100.0	89.4	97.9	100.0	91.8	98.4	100.0	97.8	97.8
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	94.3	88.7	92.0	94.3	88.6	92.0	100.2	87.7	95.2	99.9	89.1	95.5	100.2	84.8	93.9	100.4	82.9	82.9
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	99.6	81.7	90.4	98.8	81.7	90.0	93.7	91.5	92.6	101.1	87.5	94.1	103.7	90.2	96.7	98.4	98.4	98.4
MF2010	WEIGHTED AVERAGE	98.5	84.9	92.5	98.7	85.1	92.7	100.7	89.2	95.7	100.0	96.0	98.3	99.7	94.3	97.3	101.8	97.3	97.3
DIVISION		WISCONSIN									WISCONSIN								
		KENOSHA			LA CROSSE			LANCASTER			MADISON			MILWAUKEE			NEW RICHMOND		
		531			546			538			537			530,532			540		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		98.8	98.8		100.8	100.8		100.9	100.9		100.9	100.9		89.3	89.3		101.8	101.8
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	104.7	103.6	103.9	91.8	103.5	99.9	97.2	106.6	103.7	93.3	106.7	102.5	98.6	97.2	97.6	93.7	102.7	102.7
0310	Concrete Forming & Accessories	107.0	103.3	103.7	90.2	96.4	95.6	102.7	95.4	96.4	102.8	97.2	97.9	105.4	120.2	118.3	98.0	101.1	101.1
0320	Concrete Reinforcing	101.8	101.1	101.5	99.7	90.6	95.1	103.4	90.4	96.9	102.0	90.8	96.4	102.0	101.7	101.8	97.1	101.8	101.8
0330	Cast-in-Place Concrete	112.7	97.4	106.7	93.2	91.0	92.3	102.9	96.5	100.4	94.6	97.2	95.6	101.1	113.3	105.9	107.9	101.0	101.0
03	CONCRETE	104.5	100.9	102.7	92.3	93.7	93.0	99.5	95.0	97.3	95.2	96.1	95.6	98.8	113.4	105.9	96.3	97.3	97.3
04	MASONRY	101.9	107.0	105.0	91.7	99.8	96.7	104.7	99.6	101.6	102.0	102.1	102.1	104.5	122.3	115.4	119.1	94.3	94.3
05	METALS	96.6	102.4	98.5	95.6	97.6	96.3	93.4	94.5	93.8	98.5	96.5	97.8	99.2	96.4	98.3	95.8	101.9	101.9
06	WOOD, PLASTICS & COMPOSITES	102.0	102.5	102.3	95.1	97.1	96.2	100.9	97.0	98.6	98.8	97.0	97.7	103.3	120.5	113.2	97.7	109.0	109.0
07	THERMAL & MOISTURE PROTECTION	105.4	96.3	101.7	105.9	84.5	97.2	105.6	79.8	95.1	102.4	90.8	97.7	103.7	115.0	108.3	107.8	98.2	98.2
08	OPENINGS	97.5	105.6	99.5	99.6	83.8	95.6	97.2	84.6	94.0	102.1	97.5	100.9	104.3	115.3	107.1	87.7	102.4	102.4
0920	Plaster & Gypsum Board	88.1	103.0	98.8	100.1	97.3	98.1	99.0	97.3	97.8	102.7	97.3	98.8	101.7	121.4	115.7	87.2	109.8	109.8
0950, 0980	Ceilings & Acoustic Treatment	87.5	103.0	97.7	99.7	97.3	98.1	82.9	97.3	92.4	92.2	97.3	95.5	92.0	121.4	111.4	67.0	109.8	109.8
0960	Flooring	123.0	112.2	119.8	89.2	113.3	96.2	103.7	106.2	104.5	98.6	106.2	100.8	107.5	119.4	111.0	108.5	113.3	113.3
0970, 0990	Wall Finishes & Painting/Coating	100.5	103.6	102.4	88.4	72.5	78.6	91.9	70.0	78.4	91.9	97.4	95.3	93.9	117.5	108.5	101.7	97.1	97.1
09	FINISHES	105.2	105.4	105.3	96.1	97.7	97.0	98.9	94.4	96.4	99.4	99.2	99.3	102.5	120.6	112.6	94.5	102.7	102.7
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	99.3	99.9	100.0	92.4	98.5	100.0	51.0	90.3	100.0	92.2	98.5	100.0	104.2	100.8	100.0	98.5	98.5
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	100.1	94.8	97.9	100.2	85.5	94.3	93.9	85.3	90.4	99.8	94.6	97.7	99.9	103.7	101.4	93.7	82.0	82.0
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	101.7	99.4	100.5	104.0	90.4	97.0	100.9	90.4	95.5	99.4	94.1	96.7	102.6	100.1	101.3	102.0	97.3	97.3
MF2010	WEIGHTED AVERAGE	100.8	101.0	100.9	98.1	93.2	95.9	97.6	91.5	94.9	99.3	97.2	98.4	100.9	108.3	104.2	97.3	94.2	94.2
DIVISION		WISCONSIN									WISCONSIN								
		OSHKOSH			PORTAGE			RACINE			RHINELANDER			SUPERIOR			WAUSAU		
		549			539			534			545			548			544		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		98.7	98.7		100.9	100.9		100.9	100.9		98.7	98.7		101.4	101.4		98.7	98.7
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	93.9	98.5	97.0	87.1	106.6	100.6	97.6	107.3	104.3	107.9	99.6	102.2	90.2	104.1	99.7	89.3	98.3	98.3
0310	Concrete Forming & Accessories	92.2	84.6	85.6	96.3	96.3	96.3	103.6	103.3	103.3	89.9	95.5	94.8	96.5	92.7	93.2	91.8	98.4	98.4
0320	Concrete Reinforcing	98.2	77.7	87.9	103.5	90.5	97.0	102.0	101.1	101.6	98.4	92.7	95.5	97.1	93.7	95.4	98.4	98.4	98.4
0330	Cast-in-Place Concrete	99.4	88.1	99.0	88.3	96.7	92.4	101.5	97.2	99.8	112.7	98.7	107.2	101.6	96.9	99.8	92.6	98.0	98.0
03	CONCRETE	94.0	85.1	89.7	87.6	96.2	91.8	98.7	100.8	99.7	106.2	96.3	101.4	93.8	94.7	94.1	85.0	98.0	98.0
04	MASONRY	105.6	87.9	94.8	103.6	99.5	101.1	104.6	107.0	106.0	122.5	99.1	108.2	118.4	104.0	109.6	108.1	97.8	97.8
05	METALS	96.0	89.8	94.0	94.1	95.4	94.5	97.5	102.4	99.1	95.9	97.9	96.5	96.7	99.7	97.7	95.8	97.8	97.8
06	WOOD, PLASTICS & COMPOSITES	91.8	86.2	88.5	93.0	97.0	95.3	101.7	102.5	102.2	89.6	97.1	93.9	96.2	91.2	93.3	91.3	97.1	97.1
07	THERMAL & MOISTURE PROTECTION	106.9	78.3	95.3	105.1	89.3	98.7	105.8	95.9	101.8	107.7	83.5	97.9	107.5	95.1	102.5	106.8	98.2	98.2
08	OPENINGS	93.2	83.2	90.7	97.4	91.6	95.9	102.1	105.6	103.0	93.2	86.8	91.6	87.5	92.3	88.7	93.4	98.2	98.2
0920	Plaster & Gypsum Board	85.7	86.0	85.9	93.6	97.3	95.9	100.3	103.0	102.2	85.7	97.3	94.0	87.0	91.5	90.2	86.7	97.3	97.3
0950, 0980	Ceilings & Acoustic Treatment	93.4	86.0	88.5	84.7	97.3	93.0	87.5	103.0	97.7	93.4	97.3	96.0	67.9	91.5	83.5	93.4	97.3	97.3
0960	Flooring	106.5	99.7	104.5	99.6	112.7	103.5	104.5	112.2	106.7	105.6	113.3	107.9	110.0	122.5	113.6	106.0	112.3	112.3
0970, 0990	Wall Finishes & Painting/Coating	96.6	68.3	78.9	91.9	70.0	78.4	91.9	108.7	102.2	96.0	63.6	76.0	90.2	100.4	96.1	90.0	98.3	98.3
09	FINISHES	99.1	85.2	91.4	96.7	96.4	96.5	100.3	105.9	103.4	100.1	95.5	97.5	94.0	98.9	96.7	98.7	101.9	101.9
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	64.1	92.8	100.0	65.9	93.2	100.0	99.1	99.9	100.0	95.9	91.4	100.0	89.2	97.8	100.0	97.8	97.8
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	94.5	74.6	86.4	93.9	90.2	92.4	99.9	94.8	97.8	94.5	84.8	90.5	93.7	92.3	93.1	94.3	83.9	83.9
26, 27, 3370																			

Cost Indexes

DIVISION		WYOMING																	
		CASPER			CHEYENNE			NEWCASTLE			RAWLINS			RIVERTON			ROCK SPRINGS		
		826			820			827			823			825			829 - 831		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
34	CONTRACTOR EQUIPMENT		99.3	99.3		99.3	99.3		99.3	99.3		99.3	99.3		99.3	99.3		99.3	99.3
	SITE & INFRASTRUCTURE, DEMOLITION	96.2	97.4	97.0	88.5	97.4	94.7	79.6	96.4	91.2	94.4	96.4	95.8	87.6	96.4	93.6	82.9	96.4	92.2
	Concrete Forming & Accessories	103.0	41.3	49.3	104.6	56.0	62.3	96.0	43.8	50.6	99.8	43.8	51.1	95.0	43.8	50.5	101.4	43.8	51.3
	Concrete Reinforcing	106.8	64.1	85.3	100.8	64.9	82.7	108.3	64.7	86.3	107.9	64.7	86.1	108.9	64.7	86.6	108.9	66.3	87.4
	Cast-in-Place Concrete	92.9	74.7	85.7	91.3	74.9	84.8	92.2	51.9	76.3	92.3	51.9	76.4	92.3	51.9	76.4	92.2	51.9	76.3
	CONCRETE	99.6	58.0	79.3	98.3	64.7	81.9	99.0	51.3	75.8	111.4	51.3	82.2	106.5	51.3	79.6	99.5	51.6	76.2
	MASONRY	101.3	35.8	61.4	98.1	49.4	68.4	94.8	44.3	64.0	94.8	44.3	64.0	94.8	44.3	64.0	152.6	44.3	86.5
	METALS	97.6	68.4	87.9	98.8	69.8	89.2	93.9	67.7	85.2	93.9	67.7	85.2	94.0	67.7	85.3	94.7	68.3	86.0
	WOOD, PLASTICS & COMPOSITES	91.8	38.4	60.9	93.5	57.8	72.9	84.3	44.8	61.5	87.9	44.8	63.0	83.3	44.8	61.0	91.2	44.8	64.4
	THERMAL & MOISTURE PROTECTION	97.8	47.5	77.3	99.5	53.1	80.6	100.8	46.6	78.8	102.5	46.6	79.8	101.9	46.6	79.4	100.9	46.6	78.8
	OPENINGS	96.3	43.2	83.0	98.6	53.8	87.3	102.8	46.7	88.7	102.5	46.7	88.4	102.7	46.7	88.6	103.2	47.1	89.1
	Plaster & Gypsum Board	100.7	36.4	54.8	89.0	56.4	65.7	83.7	42.9	54.6	84.1	42.9	54.7	83.7	42.9	54.6	92.8	42.9	57.2
	Ceilings & Acoustic Treatment	114.2	36.4	62.8	106.7	56.4	73.5	108.8	42.9	65.3	108.8	42.9	65.3	108.8	42.9	65.3	108.8	42.9	65.3
	Flooring	99.6	34.6	80.5	104.1	55.5	89.8	97.6	48.8	83.3	100.6	48.8	85.4	97.0	48.8	82.8	102.9	48.8	87.1
	Wall Finishes & Painting/Coating	98.8	45.4	65.9	102.3	45.4	67.2	98.1	29.1	55.5	98.1	29.1	55.5	98.1	29.1	55.5	98.1	29.1	55.5
	FINISHES	105.1	39.1	68.3	104.1	54.8	76.6	98.5	42.4	67.2	101.2	42.4	68.4	99.4	42.4	67.6	101.1	42.4	68.4
	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	74.3	94.9	100.0	76.5	95.3	100.0	57.2	91.5	100.0	57.2	91.5	100.0	57.2	91.5	100.0	57.2	91.5
	FIRE SUPPRESSION, PLUMBING & HVAC	100.0	55.0	81.8	100.0	55.0	81.8	97.0	52.6	79.0	97.0	52.6	79.0	97.0	52.6	79.0	100.0	52.7	80.8
	ELECTRICAL, COMMUNICATIONS & UTIL.	94.9	66.9	80.5	97.6	72.9	84.9	95.1	66.8	80.5	95.1	66.8	80.5	95.1	66.9	80.5	93.4	66.9	79.7
	WEIGHTED AVERAGE	98.9	57.7	80.7	99.1	63.8	83.5	96.9	57.0	79.3	99.0	57.0	80.5	98.1	57.0	80.0	101.0	57.2	81.7
DIVISION		WYOMING												CANADA					
		SHERIDAN			WHEATLAND			WORLAND			YELLOWSTONE NAT'L PA			BARRIE, ONTARIO			BATHURST, NEW BRUNSWICK		
		828			822			824			821								
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
34	CONTRACTOR EQUIPMENT		99.3	99.3		99.3	99.3		99.3	99.3		99.3	99.3		101.7	101.7		102.0	102.0
	SITE & INFRASTRUCTURE, DEMOLITION	88.1	97.4	94.5	83.8	96.4	92.5	81.2	96.4	91.7	81.3	96.7	91.9	114.9	101.4	105.6	94.6	97.7	96.7
	Concrete Forming & Accessories	102.6	46.2	53.5	97.9	44.2	51.2	97.9	43.8	50.9	97.9	46.1	52.9	123.2	93.6	97.5	103.1	66.6	71.4
	Concrete Reinforcing	108.9	64.8	86.7	108.3	64.7	86.3	108.9	64.7	86.6	110.8	69.6	90.0	180.2	87.6	133.5	148.8	59.1	103.6
	Cast-in-Place Concrete	95.4	74.8	87.3	96.2	52.4	79.0	92.2	51.9	76.3	92.2	55.2	77.6	167.6	92.3	137.9	138.2	64.1	109.0
	CONCRETE	106.6	60.3	84.1	103.7	51.7	78.3	99.2	51.3	75.9	99.5	54.4	77.5	153.4	92.1	123.5	135.8	65.0	101.3
	MASONRY	95.1	48.8	66.9	95.1	45.2	64.7	94.8	44.3	64.0	94.9	50.3	67.7	167.0	102.0	127.3	158.0	67.6	102.8
	METALS	97.5	69.6	88.3	93.8	67.7	85.2	94.0	67.7	85.3	94.6	69.5	86.3	107.3	92.6	102.5	104.7	73.5	94.4
	WOOD, PLASTICS & COMPOSITES	94.7	44.8	65.9	85.9	44.8	62.2	86.0	44.8	62.2	86.0	44.8	62.2	117.4	92.2	102.8	94.7	66.9	78.6
	THERMAL & MOISTURE PROTECTION	101.9	51.5	81.4	101.1	47.5	79.3	100.9	46.6	78.8	100.4	49.7	79.8	111.6	93.1	104.0	105.0	65.1	88.8
	OPENINGS	103.5	47.6	89.4	101.4	46.7	87.6	103.0	46.7	88.9	95.9	47.9	83.8	92.4	90.3	91.8	87.4	58.3	80.1
	Plaster & Gypsum Board	111.2	42.9	62.5	83.7	42.9	54.6	83.7	42.9	54.6	84.0	42.9	54.7	155.0	91.9	109.9	162.1	65.7	93.3
	Ceilings & Acoustic Treatment	111.8	42.9	66.3	108.8	42.9	65.3	108.8	42.9	65.3	109.7	42.9	65.6	95.8	91.9	93.2	96.7	65.7	76.2
	Flooring	100.8	48.8	85.5	99.2	48.8	84.4	99.2	48.8	84.4	99.2	48.8	84.4	132.5	101.8	123.5	115.8	48.6	96.1
	Wall Finishes & Painting/Coating	100.4	45.4	66.5	98.1	29.1	55.5	98.1	29.1	55.5	98.1	29.1	55.5	112.8	93.1	100.7	112.0	53.5	75.9
	FINISHES	106.5	45.4	72.4	99.4	42.6	67.7	99.0	42.4	67.4	99.2	43.9	68.3	118.4	95.4	105.5	112.6	62.1	84.5
	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	100.0	75.0	95.0	100.0	57.5	91.5	100.0	57.2	91.5	100.0	59.2	91.9	140.0	79.2	127.9	140.5	69.5	126.4
	FIRE SUPPRESSION, PLUMBING & HVAC	97.0	55.0	80.0	97.0	53.1	79.2	97.0	52.6	79.0	97.0	55.7	80.3	103.0	104.9	103.8	103.2	73.7	91.3
	ELECTRICAL, COMMUNICATIONS & UTIL.	97.8	66.9	81.9	95.1	72.8	83.6	95.1	66.9	80.5	94.1	66.9	80.1	119.3	94.5	106.5	119.9	64.6	91.4
	WEIGHTED AVERAGE	99.7	60.6	82.4	97.5	58.2	80.2	97.1	57.0	79.4	96.4	59.3	80.1	118.6	96.9	109.1	114.1	70.1	94.7
DIVISION		CANADA																	
		BRANDON, MANITOBA			BRANTFORD, ONTARIO			BRIDGEWATER, NOVA SCOTIA			CALGARY, ALBERTA			CAP-DE-LA-MADELINE, QUEBEC			CHARLESBOURG, QUEBEC		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
34	CONTRACTOR EQUIPMENT		103.9	103.9		101.7	101.7		101.7	101.7		106.4	106.4		102.6	102.6		102.6	102.6
	SITE & INFRASTRUCTURE, DEMOLITION	110.7	100.3	103.5	112.7	101.7	105.1	97.0	99.3	98.5	125.9	105.2	111.6	92.7	100.9	98.4	92.7	100.9	98.4
	Concrete Forming & Accessories	122.5	75.8	81.9	123.0	101.4	104.2	97.4	75.0	77.9	127.5	96.2	100.3	128.1	92.1	96.8	128.1	92.1	96.8
	Concrete Reinforcing	161.8	55.6	108.3	175.1	86.3	130.3	148.8	48.8	98.4	143.8	72.5	107.9	148.8	82.4	115.3	148.8	82.4	115.3
	Cast-in-Place Concrete	151.1	79.4	122.8	163.5	114.5	144.2	168.1	74.8	131.3	201.8	106.1	164.1	131.9	101.5	119.9	131.9	101.5	119.9
	CONCRETE	135.9	73.9	105.7	150.5	103.0	127.4	148.4	70.7	110.5	167.2	95.3	132.2	130.9	93.6	112.7	130.9	93.6	112.7
	MASONRY	161.7	70.4	106.0	163.3	106.7	128.8	158.8	74.8	107.6	212.7	90.7	138.3	159.0	90.6	117.3	159.0	90.6	117.3
	METALS	107.5	78.8	98.0	106.7	93.4	102.3	105.8	76.3	96.1	143.7	89.0	125.6	105.0	90.0	100.1	105.0	90.0	100.1
	WOOD, PLASTICS & COMPOSITES	112.9	76.8	92.0	115.2	100.1	106.5	87.4	74.3	79.8	113.5	96.0	103.4	126.1	92.0	106.4	126.1	92.0	106.4
	THERMAL & MOISTURE PROTECTION	105.2	75.0	93.0	111.5	98.9	106.3	106.5	73.1	92.9	123.7	94.0	111.6	105.4	93.9	100.7	105.4	93.9	100.7
	OPENINGS	93.4	67.6	86.9	92.2	96.7	93.4	83.9	67.7	79.9	93.4	85.7	91.4	93.4	84.6	91.2	93.4	84.6	91.2
	Plaster & Gypsum Board	130.0	75.6	91.2	155.0	100.1	115.8	155.9	73.4	96.9	171.9	95.4	117.2	185.9	91.5	118.5	185.9	91.5	118.5
	Ceilings & Acoustic Treatment	95.8	75.5	82.5	95.8	100.1	98.6	95.8	73.4	81.0	151.3	95.4	114.4	95.8	91.5	93.0	95.8	91.5	93.0
	Flooring	132.5	72.3	114.8	132.5	101.8	123.5	112.1	69.3	99.5	134.6	95.4	123.1	132.5	102.5	123.7	132.5	102.5	123.7
	Wall Finishes & Painting/Coating	112.0	60.8	80.5	112.0	102.2	106.0	112.0	66.5	83.9	111.9	109.7	110.5	112.0	95.0	101.5	112.0	95.0	101.5
	FINISHES	114.5	74.0	91.9	117.1	102.0	108.7	110.3	73.2	89.6	133.8	90.8	113.8	119.7	94.6	105.7	119.7	94.6	105.7
	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	140.5	71.8	126.9	140.5	81.5	128.8	140.5	70.8	126.7	140.5	101.4	132.8	140.5	90.7	130.5	140.5	90.7	130.6
	FIRE SUPPRESSION, PLUMBING & HVAC	103.2	88.8	97.4	103.2	108.0	105.2	103.2	89.2	97.5	100.5	92.6	97.3	103.8	96.1	100.7	103.8	96.1	100.7
	ELECTRICAL, COMMUNICATIONS & UTIL.	122.0	72.8	96.6	117.2	94.0	105.2	123.2	67.3	94.4	123.5	84.2	103.2	116.9	75.9	95.8	116		

City Cost Indexes

DIVISION		CANADA																	
		CHARLOTTETOWN, PRINCE EDWARD ISLAND			CHICOUTIMI, QUEBEC			CORNER BROOK, NEWFOUNDLAND			CORNWALL, ONTARIO			DALHOUSIE, NEW BRUNSWICK			DARTMOUTH, NOVA SCOTIA		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		101.6	101.6		102.6	102.6		103.3	103.3		101.7	101.7		102.0	102.0		104.7	104.7
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	108.2	96.8	100.3	92.2	99.7	97.4	112.8	98.3	102.8	110.8	101.2	104.2	94.5	97.7	96.7	104.7	95.3	
0310	Concrete Forming & Accessories	97.8	60.9	65.7	128.1	89.7	94.7	104.5	64.5	69.7	121.0	93.8	97.3	103.1	66.9	71.6	97.5	70.4	
0320	Concrete Reinforcing	155.0	48.9	101.5	112.2	92.1	102.1	148.8	50.8	99.4	175.1	86.0	130.2	148.8	59.1	103.6	155.2	48.8	
0330	Cast-in-Place Concrete	160.5	63.3	122.2	130.1	96.8	117.0	172.3	73.2	133.2	147.0	104.4	130.2	138.2	64.2	109.1	169.8	74.8	
03	CONCRETE	153.8	60.3	108.3	124.3	92.7	108.9	162.3	65.9	115.3	142.1	96.0	119.7	135.8	65.1	101.4	150.3	70.1	
04	MASONRY	164.1	65.2	103.7	159.5	90.6	117.5	159.2	66.7	102.8	162.0	97.8	122.8	155.8	67.6	101.9	170.6	74.8	
05	METALS	111.6	69.4	97.7	104.5	91.1	100.1	107.9	75.0	97.1	106.7	92.0	101.8	104.7	73.8	94.5	108.0	76.7	
06	WOOD, PLASTICS & COMPOSITES	87.7	60.4	71.9	126.1	89.8	105.1	95.7	63.5	77.1	114.1	93.1	102.0	94.7	66.9	78.6	87.4	74.1	
07	THERMAL & MOISTURE PROTECTION	106.6	62.5	88.6	105.4	93.0	100.3	108.6	64.7	90.7	111.3	93.2	103.9	108.9	65.1	91.1	106.5	73.1	
08	OPENINGS	95.7	52.1	84.7	92.9	77.9	89.1	99.7	59.6	89.6	93.4	90.0	92.5	87.4	58.3	80.1	83.9	67.7	
0920	Plaster & Gypsum Board	157.7	59.1	87.2	185.9	89.3	116.9	162.1	62.2	90.7	224.8	92.8	130.5	162.1	65.7	93.3	156.9	73.4	
0950, 0980	Ceilings & Acoustic Treatment	110.3	59.1	76.5	95.8	89.3	91.5	96.7	62.2	73.9	98.5	92.8	94.8	96.7	65.7	76.2	106.8	73.4	
0960	Flooring	112.2	64.8	98.2	132.5	102.5	123.7	116.5	59.0	99.6	132.5	100.3	123.1	115.8	74.3	103.6	112.1	98.3	
0970, 0990	Wall Finishes & Painting/Coating	112.0	44.5	70.4	112.0	101.1	105.3	112.0	64.0	82.4	112.0	95.3	101.7	112.0	53.5	75.9	112.0	74.3	
09	FINISHES	115.2	60.2	84.5	119.7	93.7	105.2	114.0	63.5	85.8	125.8	95.4	108.8	112.6	67.2	87.3	112.9	75.2	
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	140.5	68.9	126.3	140.5	90.1	130.5	140.5	69.8	126.5	140.5	78.8	128.2	140.5	69.4	126.4	140.5	70.8	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	103.3	67.4	88.8	103.2	95.6	100.1	103.2	75.9	92.1	103.8	105.8	104.6	103.2	73.7	91.3	103.2	86.2	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	113.6	54.7	83.2	116.5	83.0	99.2	119.1	60.9	89.1	118.3	95.0	106.3	120.0	61.1	89.6	123.7	67.3	
MF2010	WEIGHTED AVERAGE	118.2	65.4	95.0	113.7	91.6	104.0	119.5	70.5	97.9	117.7	97.2	108.7	114.1	70.3	94.8	117.2	77.8	

DIVISION		CANADA																	
		EDMONTON, ALBERTA			FORT McMURRAY, ALBERTA			FREDERICTON, NEW BRUNSWICK			GATINEAU, QUEBEC			GRANBY, QUEBEC			HALIFAX, NOVA SCOTIA		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		106.4	106.4		103.7	103.7		102.0	102.0		102.6	102.6		102.6	102.6		101.7	101.7
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	151.7	105.2	119.6	118.6	102.2	107.3	96.4	97.7	97.3	92.5	100.9	98.3	93.0	100.9	98.5	99.9	99.0	
0310	Concrete Forming & Accessories	129.7	96.2	100.6	121.2	96.4	99.6	120.7	67.2	74.1	128.1	92.0	96.7	128.1	91.9	96.6	97.8	71.3	
0320	Concrete Reinforcing	143.8	72.5	107.9	161.8	72.5	116.8	145.2	59.3	101.9	157.4	82.4	119.6	157.4	82.4	119.6	153.0	61.2	
0330	Cast-in-Place Concrete	210.4	106.1	169.3	217.2	105.3	173.1	132.5	64.3	105.6	130.1	101.4	118.8	134.5	101.4	121.4	172.4	80.6	
03	CONCRETE	171.7	95.3	134.5	175.3	95.1	136.2	133.6	65.3	100.4	131.3	93.5	112.9	133.5	93.5	114.0	151.2	76.1	
04	MASONRY	200.5	90.7	133.5	202.4	90.7	134.2	175.9	69.2	110.8	158.9	90.6	117.2	159.2	90.6	117.3	171.4	82.4	
05	METALS	144.2	89.0	126.0	132.2	89.1	118.0	110.3	74.3	98.4	105.0	89.9	100.0	105.0	89.8	100.0	126.5	81.6	
06	WOOD, PLASTICS & COMPOSITES	110.0	96.0	101.9	109.8	96.0	101.8	115.9	66.9	87.6	126.1	92.0	106.4	126.1	92.0	106.4	87.5	76.7	
07	THERMAL & MOISTURE PROTECTION	125.1	94.0	112.5	118.9	93.5	108.5	109.8	66.1	92.0	105.4	93.9	100.7	105.4	92.3	100.0	107.3	77.4	
08	OPENINGS	93.4	85.7	91.4	93.4	85.7	91.4	87.3	57.1	79.7	93.4	79.7	89.9	93.4	79.7	89.9	83.9	71.4	
0920	Plaster & Gypsum Board	166.3	95.4	115.6	154.6	95.5	112.4	177.8	65.7	97.7	147.1	91.5	107.4	150.1	91.5	108.3	158.0	75.4	
0950, 0980	Ceilings & Acoustic Treatment	158.0	95.4	116.6	105.8	95.5	99.0	107.6	65.7	79.9	95.8	91.5	93.0	95.8	91.5	93.0	111.2	75.4	
0960	Flooring	135.8	95.4	123.9	132.5	95.4	121.6	128.0	77.5	113.2	132.5	102.5	123.7	132.5	102.5	123.7	112.1	98.3	
0970, 0990	Wall Finishes & Painting/Coating	112.0	109.7	110.6	112.0	99.0	104.0	112.0	68.2	84.9	112.0	95.0	101.5	112.0	95.0	101.5	112.0	78.8	
09	FINISHES	137.0	98.0	115.2	120.8	96.8	107.4	120.8	69.4	92.2	115.2	94.6	103.7	115.5	94.6	103.9	114.2	86.4	
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	140.5	101.4	132.8	140.5	101.3	132.7	140.5	69.5	126.4	140.5	90.7	130.6	140.5	90.7	130.6	140.5	71.5	
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	100.6	92.6	97.4	103.5	104.4	103.9	103.3	83.8	95.4	103.8	96.1	100.7	103.2	96.1	100.4	99.8	78.8	
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	115.6	84.2	99.4	111.0	89.3	99.8	124.5	80.5	101.8	116.9	75.9	95.8	117.6	75.9	96.1	120.9	78.8	
MF2010	WEIGHTED AVERAGE	130.0	93.1	113.7	126.5	95.8	113.0	117.0	75.6	98.8	114.4	91.1	104.2	114.7	91.0	104.3	119.0	80.1	

DIVISION		CANADA																	
		HAMILTON, ONTARIO			HULL, QUEBEC			JOLIETTE, QUEBEC			KAMLOOPS, BRITISH COLUMBIA			KINGSTON, ONTARIO			KITCHENER, ONTARIO		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		108.4	108.4		102.6	102.6		102.6	102.6		105.7	105.7		104.0	104.0		103.9	103.9
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	116.3	112.8	113.9	92.5	100.9	98.3	93.2	100.9	98.5	117.7	104.3	108.5	110.8	104.9	106.7	100.3	103.9	
0310	Concrete Forming & Accessories	130.8	94.3	99.0	128.1	92.0	96.7	128.1	92.1	96.8	123.5	95.0	98.7	127.2	93.8	97.4	117.6	85.8	
0320	Concrete Reinforcing	162.7	85.9	124.0	157.4	82.4	119.6	148.8	82.4	115.3	116.8	80.3	98.4	175.1	86.0	130.2	110.8	85.8	
0330	Cast-in-Place Concrete	153.0	95.8	130.4	130.1	101.4	118.8	135.6	101.5	122.1	117.3	105.3	112.5	147.0	104.4	130.2	140.8	96.8	
03	CONCRETE	143.8	93.3	119.2	131.3	93.5	112.9	132.7	93.6	113.7	137.7	95.8	117.3	142.1	96.1	119.7	122.6	84.8	
04	MASONRY	179.1	100.4	131.1	158.9	90.6	117.2	159.3	90.6	117.4	165.6	98.8	124.8	168.6	99.1	125.4	158.8	82.5	
05	METALS	125.5	92.3	114.6	105.0	89.9	100.0	105.0	90.0	100.1	107.3	89.9	101.6	108.4	91.9	102.9	115.4	82.1	
06	WOOD, PLASTICS & COMPOSITES	114.5	93.4	102.3	126.1	92.0	106.4	126.1	92.0	106.4	98.3	93.4	95.5	114.1	93.2	102.0	108.7	84.8	
07	THERMAL & MOISTURE PROTECTION	122.5	95.7	111.6	105.4	93.9	100.7	105.4	93.9	100.7	120.7	90.7	108.5	111.3	94.4	104.4	110.8	98.8	
08	OPENINGS	93.4	91.9	93.0	93.4	79.7	89.9	93.4	84.6	91.2	89.1	89.4	89.2	93.4	89.6	92.4	84.5	89.5	
0920	Plaster & Gypsum Board	191.9	93.2	121.4	147.1	91.5	107.4	185.9	91.5	118.5	161.7	92.7	105.1	129.1	93.0	131.9	153.0	84.4	
0950, 0980	Ceilings & Acoustic Treatment	130.9	93.2	106.0	95.8	91.5	93.0	95.8	91.5	93.0	95.8	92.7	93.8	113.0	93.0	99.8	108.6	84.4	
0960	Flooring	134.6	105.3	126.0	132.5	102.5	123.7	132.5	102.5	123.7	130.3	57.3	108.8	132.5	100.3	123.1	128.5	105.3	
0970, 0990	Wall Finishes & Painting/Coating	112.0	100.9	105.2	112.0	95.0	101.5	112.0	95.0	101.5	112.0	87.0	96.6	112.0	88.0	97.2	112.0	78.1	
09	FINISHES	130.9	92.2	112.1	115.2	94.6	103.7	119.7	94.6	105.7	116.6	87.7	100.5	129.5	94.7	110.1	118.9	88.5	
COVERS	DIVS. 10 -																		

Cost Indexes

DIVISION				CANADA																	
				LAVAL, QUEBEC			LETHBRIDGE, ALBERTA			LLOYDMINSTER, ALBERTA			LONDON, ONTARIO			MEDICINE HAT, ALBERTA			MONCTON, NEW BRUNSWICK		
				MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	93.0	100.9	98.5	110.9	102.8	105.3	110.9	102.2	104.9	115.1	105.3	108.4	109.5	102.3	104.5	94.0	97.8	96.7			
SITE & INFRASTRUCTURE, DEMOLITION	128.2	92.0	96.7	122.4	96.5	99.9	120.7	86.2	90.7	130.9	88.2	93.8	122.3	86.2	90.9	103.1	67.1	71.8			
Concrete Forming & Accessories	157.4	82.4	119.6	161.8	72.5	116.8	161.8	72.5	116.8	142.3	84.7	113.2	161.8	72.5	116.8	148.8	62.3	105.2			
Cast-in-Place Concrete	134.5	101.4	121.4	162.9	105.3	140.2	151.1	101.5	131.5	164.1	93.7	136.3	151.1	101.5	131.5	133.1	64.5	106.1			
CONCRETE	133.5	93.5	114.0	148.1	95.2	122.3	142.1	89.3	116.4	146.2	89.7	118.6	142.2	89.3	116.4	133.2	66.1	100.5			
MASONRY	159.2	90.6	117.3	176.5	90.7	124.1	158.7	83.8	113.0	183.3	97.7	131.1	158.7	83.8	113.0	157.6	67.6	102.7			
METALS	105.1	89.9	100.1	125.8	89.1	113.7	107.5	89.0	101.4	124.2	91.6	113.5	107.5	88.9	101.4	104.7	79.4	96.4			
WOOD, PLASTICS & COMPOSITES	126.3	92.0	106.5	113.0	96.0	103.2	109.8	85.7	95.9	114.5	86.5	98.3	113.0	85.7	97.2	94.7	66.9	78.6			
THERMAL & MOISTURE PROTECTION	105.9	93.9	101.0	116.4	93.5	107.1	113.6	88.8	103.5	123.3	93.4	111.1	119.6	88.8	107.1	108.9	66.6	91.7			
OPENINGS	93.4	79.7	89.9	93.4	85.7	91.4	93.4	80.1	90.0	94.4	87.0	92.5	93.4	80.1	90.0	87.4	61.6	80.9			
Plaster & Gypsum Board	150.5	91.5	108.4	139.1	95.5	107.9	133.7	84.9	98.8	193.7	86.0	116.8	136.4	84.9	99.6	162.1	65.7	93.3			
Ceilings & Acoustic Treatment	95.8	91.5	93.0	104.9	95.5	98.7	95.8	84.9	88.6	137.2	86.0	103.4	95.8	84.9	88.6	96.7	65.7	76.2			
Flooring	132.5	102.5	123.7	132.5	95.4	121.6	132.5	95.4	121.6	134.8	105.3	126.2	132.5	95.4	121.6	115.8	74.3	103.6			
Wall Finishes & Painting/Coating	112.0	95.0	101.5	111.9	108.0	109.5	112.0	84.2	94.8	112.0	97.7	103.2	111.9	84.2	94.8	112.0	53.5	75.9			
FINISHES	115.6	94.6	103.9	117.8	97.8	106.6	115.3	87.4	99.7	132.1	92.3	109.9	115.4	87.4	99.8	112.6	67.2	87.3			
DVS. 10 - 14, 25, 28, 41, 43, 44, 46	140.5	90.7	130.6	140.5	101.3	132.7	140.5	97.8	132.0	140.5	102.6	133.0	140.5	97.8	132.0	140.5	69.5	126.4			
FIRE SUPPRESSION, PLUMBING & HVAC	99.8	96.1	98.3	103.4	100.8	102.4	103.8	100.9	102.6	100.7	81.2	92.8	103.2	97.3	100.8	103.2	73.8	91.3			
ELECTRICAL, COMMUNICATIONS & UTIL.	118.9	75.9	96.7	112.5	89.3	100.5	109.9	89.3	99.3	112.9	85.1	98.6	109.9	89.3	99.3	124.6	64.6	93.7			
WEIGHTED AVERAGE	114.0	91.1	103.9	120.8	95.3	109.5	116.0	91.8	105.4	121.6	90.2	107.8	116.1	91.1	105.1	114.3	71.7	95.5			

DIVISION				CANADA																	
				MONTREAL, QUEBEC			MOOSE JAW, SASKATCHEWAN			NEW GLASGOW, NOVA SCOTIA			NEWCASTLE, NEW BRUNSWICK			NORTH BAY, ONTARIO			OSHAWA, ONTARIO		
				MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	102.6	100.0	100.8	110.6	96.8	101.1	97.2	99.3	98.6	94.6	97.7	96.7	112.7	100.8	104.5	112.6	104.9	107.3			
SITE & INFRASTRUCTURE, DEMOLITION	135.8	90.0	96.0	106.7	63.3	69.0	97.4	75.0	77.9	103.1	66.9	71.6	123.0	91.1	95.2	123.2	93.2	97.1			
Concrete Forming & Accessories	150.6	92.1	121.1	114.2	64.7	89.2	148.8	48.8	98.4	148.8	59.1	103.6	175.1	85.5	129.9	175.1	88.2	131.3			
Cast-in-Place Concrete	182.2	98.1	149.1	146.6	73.7	117.9	169.8	74.8	132.4	138.2	64.2	109.1	163.5	90.3	134.7	162.8	91.2	134.6			
CONCRETE	156.9	93.2	125.9	125.4	67.8	97.4	149.3	70.7	111.0	135.8	65.2	101.4	150.5	89.9	121.0	150.2	91.7	121.7			
MASONRY	166.1	90.6	120.1	157.3	67.0	102.2	159.0	74.8	107.6	158.0	67.6	102.8	163.3	93.5	120.7	162.9	98.2	123.4			
METALS	124.2	91.6	113.4	103.9	75.9	94.7	105.8	76.3	96.1	104.7	73.8	94.5	106.7	91.6	101.7	106.8	93.8	102.5			
WOOD, PLASTICS & COMPOSITES	126.3	90.0	105.3	96.2	61.8	76.3	87.4	74.3	79.8	94.7	66.9	78.6	115.2	91.6	101.6	115.4	92.2	102.0			
THERMAL & MOISTURE PROTECTION	119.4	93.5	108.9	104.8	67.1	89.5	106.5	73.1	92.9	108.9	65.1	91.1	111.5	89.4	102.5	111.8	91.2	103.4			
OPENINGS	93.4	79.8	89.9	88.2	59.2	80.9	83.9	67.7	79.9	87.4	58.3	80.1	92.2	87.4	91.0	92.2	91.7	92.1			
Plaster & Gypsum Board	171.6	89.3	112.8	131.9	60.5	80.9	155.9	73.4	96.9	162.1	65.7	93.3	155.0	91.3	109.5	156.8	91.9	110.4			
Ceilings & Acoustic Treatment	115.6	89.3	98.2	95.8	60.5	72.5	95.8	73.4	81.0	96.7	65.7	76.2	95.8	91.3	92.8	100.3	91.9	94.8			
Flooring	134.1	102.5	124.8	121.1	65.2	104.7	112.1	69.3	99.5	115.8	74.3	103.6	132.5	100.3	123.1	132.5	108.0	125.3			
Wall Finishes & Painting/Coating	112.0	101.1	105.3	112.0	69.2	85.6	112.0	66.5	83.9	112.0	53.5	75.9	112.0	94.5	101.2	112.0	104.9	107.6			
FINISHES	123.5	93.9	107.0	111.5	64.0	85.0	110.3	73.2	89.6	112.6	67.2	87.3	117.1	93.6	104.0	118.2	97.2	106.5			
DVS. 10 - 14, 25, 28, 41, 43, 44, 46	140.5	90.6	130.6	140.5	68.6	126.2	140.5	70.8	126.7	140.5	69.5	126.4	140.5	77.4	128.0	140.5	103.5	133.2			
FIRE SUPPRESSION, PLUMBING & HVAC	100.7	95.6	98.6	103.8	80.4	94.3	103.2	89.2	97.5	103.2	73.7	91.3	103.2	103.6	103.4	99.8	106.3	102.4			
ELECTRICAL, COMMUNICATIONS & UTIL.	123.4	83.0	102.5	120.0	65.6	91.9	119.4	67.3	92.5	119.2	64.6	91.0	119.4	94.9	106.8	118.7	94.5	106.2			
WEIGHTED AVERAGE	121.9	91.9	108.7	113.4	72.4	95.3	115.3	77.8	98.8	114.1	70.8	95.0	118.0	94.9	107.8	117.1	98.2	108.7			

DIVISION				CANADA																	
				OTTAWA, ONTARIO			OWEN SOUND, ONTARIO			PETERBOROUGH, ONTARIO			PORTAGE LA PRAIRIE, MANITOBA			PRINCE ALBERT, SASKATCHEWAN			PRINCE GEORGE, BRITISH COLUMBIA		
				MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	103.9	103.9		101.7	101.7		101.7	101.7		103.9	103.9		100.2	100.2		105.7	105.7				
SITE & INFRASTRUCTURE, DEMOLITION	112.3	105.1	107.3	114.9	101.2	105.5	112.7	101.1	104.7	111.2	100.2	103.6	105.5	97.0	99.7	121.2	104.3	109.6			
Concrete Forming & Accessories	131.7	90.8	96.1	123.2	89.5	93.9	123.0	92.2	96.2	122.5	75.3	81.5	106.7	63.1	68.8	111.9	89.5	92.4			
Concrete Reinforcing	155.4	84.6	119.7	180.2	87.6	133.5	175.1	86.0	130.2	161.8	55.6	108.3	119.4	64.6	91.8	116.8	80.3	98.4			
Cast-in-Place Concrete	168.5	92.9	138.7	167.6	86.2	135.5	163.5	92.0	135.4	151.1	78.7	122.6	132.8	73.6	109.5	147.1	105.3	130.6			
CONCRETE	150.5	90.5	121.3	153.4	88.2	121.6	150.5	91.1	121.6	135.9	73.5	105.5	119.4	67.7	94.2	151.9	93.4	123.4			
MASONRY	180.1	97.6	129.8	167.0	95.5	125.8	163.3	100.6	125.0	161.7	69.3	105.3	156.3	67.0	101.8	167.9	98.8	125.8			
METALS	129.3	91.5	116.8	107.3	92.4	102.4	106.7	92.1	101.9	107.5	78.7	98.0	104.0	75.7	94.6	107.3	89.9	101.6			
WOOD, PLASTICS & COMPOSITES	114.4	90.0	100.3	117.4	88.1	100.5	115.2	90.2	100.8	112.9	76.8	92.0	96.2	61.8	76.3	98.3	85.8	91.1			
THERMAL & MOISTURE PROTECTION	125.1	92.9	112.0	111.6	90.3	102.9	111.5	95.2	104.9	105.2	74.5	92.8	104.7	65.9	88.9	114.9	89.9	104.8			
OPENINGS	93.4	88.9	92.2	92.4	86.7	90.9	92.2	89.2	91.5	93.4	67.6	86.9	86.7	59.2	79.8	89.1	85.3	88.2			
Plaster & Gypsum Board	230.4	89.7	129.9	155.0	87.7	107.0	155.0	89.9	108.5	130.0	75.6	91.2	131.9	60.5	80.9	136.1	84.9	99.5			
Ceilings & Acoustic Treatment	140.8	89.7	107.0	95.8	87.7	90.5	95.8	89.9	91.9	95.8	75.6	82.5	95.8	60.5	72.5	95.8	84.9	88.6			
Flooring	134.6	100.3	124.6	132.5	101.8	123.5	132.5	100.3	123.1	132.5	72.3	114.8	121.1	65.2	104.7	127.3	78.5	113.0			
Wall Finishes & Painting/Coating	112.0	92.6	100.0	112.8	93.1	107.0	112.0	96.9	102.7	112.0	68.8	80.5	112.0	59.0	79.3	112.0	87.0	96.6			
FINISHES	136.5	92.9	112.2	118.4	92.3	103.8	117.1	94.3	104.4	114.6	73.7	91.8	111.5	62.9	84.4	115.7	88.8	99.6			
DVS. 10 - 14, 25, 28, 41, 43, 44, 46	140.5	100.6	132.6	140.0	77.9	127.7	140.5	79.0	128.3	140.5	71.4	126.8	140.5	68.7	126.2	140.5	100.8	132.6			
FIRE SUPPRESSION, PLUMBING & HVAC	100.7	81.7	93.0	103.0	103.5	103.2	103.2	107.4	104.9	103.2	88.2	97.2	103.8	72.4	91.1	103.2	99.7	101.8			
ELECTRICAL, COMMUNICATIONS & UTIL.	112.3	85.9	98.7	120.9	93.6	106.8	117.2	94.5	105.6	119.7	62.8	90.3	120.0	65.6	91.9	117.4	85.6	101.0			
WEIGHTED AVERAGE	122.9	90.7	108.7	118.8	95.0	108.3	117.7	97.0	108.5	116.0	77.2	98.8	112.3	70.5	93.9	118.1	93.7	107.3			

City Cost Indexes

DIVISION		CANADA																	
		QUEBEC, QUEBEC			RED DEER, ALBERTA			REGINA, SASKATCHEWAN			RIMOUSKI, QUEBEC			ROUYN-NORANDA, QUEBEC			SAINT-HYACINTHE, QUEBEC		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		104.5	104.5		103.7	103.7		100.2	100.2		102.6	102.6		102.6	102.6		93.0	100.6
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	100.7	100.1	100.3	109.5	102.3	104.5	115.5	98.5	103.8	93.0	99.7	97.7	92.5	100.9	98.3		93.0	100.6
0310	Concrete Forming & Accessories	137.2	90.3	96.4	139.2	86.2	93.1	107.0	88.1	90.6	128.1	89.7	94.7	128.1	92.0	96.7	128.1	92.0	96.7
0320	Concrete Reinforcing	141.0	92.2	116.4	161.8	72.5	116.8	128.8	77.8	103.1	112.2	92.1	102.1	157.4	82.4	119.6	157.4	82.4	119.6
0330	Cast-in-Place Concrete	149.3	98.5	129.3	151.1	101.5	131.5	170.8	93.2	140.2	136.9	96.8	121.1	130.1	101.4	118.8	134.5	101.4	118.8
03	CONCRETE	139.0	93.5	116.8	143.2	89.3	116.9	139.9	88.0	114.6	127.7	92.7	110.6	131.3	93.5	112.9	133.5	93.5	112.9
04	MASONRY	173.5	90.7	122.9	158.7	83.8	113.0	167.7	91.1	121.0	158.7	90.6	117.1	158.9	90.6	117.2	159.1	90.6	117.2
05	METALS	124.2	91.8	113.5	107.5	88.9	101.4	110.6	83.7	101.7	104.5	91.1	100.1	105.0	89.9	100.0	105.0	89.9	100.0
06	WOOD, PLASTICS & COMPOSITES	126.9	90.1	105.6	113.0	85.7	97.2	96.3	88.8	92.0	126.1	89.8	105.1	126.1	92.0	106.4	126.1	92.0	106.4
07	THERMAL & MOISTURE PROTECTION	121.4	93.7	110.1	129.1	88.8	112.8	106.7	84.3	97.6	105.4	93.0	100.3	105.4	93.9	100.7	105.6	93.9	100.7
08	OPENINGS	93.4	87.8	92.0	93.4	80.1	90.0	88.2	77.7	85.5	92.9	77.9	89.1	93.4	79.7	89.9	93.4	79.7	89.9
0920	Plaster & Gypsum Board	191.4	89.3	118.4	136.4	84.9	99.6	168.2	88.5	111.2	185.7	89.3	116.8	146.8	91.5	107.3	149.8	91.5	107.3
0950, 0980	Ceilings & Acoustic Treatment	120.7	89.3	99.9	95.8	84.9	88.6	125.7	88.5	101.1	94.9	89.3	91.2	94.9	91.5	92.7	94.9	91.5	92.7
0960	Flooring	134.6	102.5	125.2	134.6	95.4	123.1	121.1	67.4	105.4	132.5	102.5	123.7	132.5	102.5	123.7	132.5	102.5	123.7
0970, 0990	Wall Finishes & Painting/Coating	112.5	101.1	105.4	111.9	84.2	94.8	112.0	87.3	96.8	112.0	101.1	105.3	112.0	95.0	101.5	112.0	95.0	101.5
09	FINISHES	127.5	93.9	108.8	116.0	87.4	100.0	123.0	84.8	101.7	119.5	93.7	105.1	114.9	94.6	103.6	115.3	94.6	103.6
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	140.5	90.7	130.6	140.5	97.8	132.0	140.5	75.1	127.5	140.5	90.1	130.5	140.5	90.7	130.6	140.5	90.7	130.6
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	100.6	95.7	98.6	103.2	97.3	100.8	99.9	82.3	92.8	103.2	95.6	100.1	103.2	96.1	100.4	98.6	96.1	100.4
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	116.5	83.0	99.2	109.9	89.3	99.3	119.9	87.3	103.1	117.6	83.0	99.7	117.6	75.9	96.1	118.5	75.9	96.1
MF2010	WEIGHTED AVERAGE	119.8	92.3	107.7	116.6	91.1	105.3	116.7	86.2	103.2	114.2	91.6	104.2	114.4	91.1	104.1	113.6	91.1	104.1

DIVISION		CANADA																	
		SAINT JOHN, NEW BRUNSWICK			SARNIA, ONTARIO			SASKATOON, SASKATCHEWAN			SAULT STE MARIE, ONTARIO			SHERBROOKE, QUEBEC			SOREL, QUEBEC		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		102.0	102.0		101.7	101.7		100.2	100.2		101.7	101.7		102.6	102.6		93.2	100.6
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	94.8	98.6	97.4	111.2	101.2	104.3	106.6	98.5	101.0	101.2	100.8	100.9	93.0	100.9	98.5		93.2	100.6
0310	Concrete Forming & Accessories	120.5	63.9	71.3	121.9	99.7	102.6	106.9	88.1	90.5	112.0	88.0	91.1	128.1	92.0	96.7	128.1	92.0	96.7
0320	Concrete Reinforcing	148.8	62.5	105.3	124.0	87.4	105.6	119.4	77.8	98.4	112.4	85.6	98.9	157.4	82.4	119.6	148.8	82.4	119.6
0330	Cast-in-Place Concrete	136.2	64.3	107.8	150.9	106.0	133.2	142.0	93.2	122.8	135.5	90.4	117.8	134.5	101.4	121.4	135.6	101.4	121.4
03	CONCRETE	136.0	64.7	101.3	136.1	99.5	118.3	124.0	88.0	106.4	120.0	88.6	104.7	133.5	93.5	114.0	132.7	93.5	114.0
04	MASONRY	176.3	69.8	111.3	174.1	103.5	131.0	164.2	91.1	119.6	159.7	95.1	120.3	159.2	90.6	117.3	159.3	90.6	117.3
05	METALS	104.6	79.9	96.5	106.6	92.5	102.0	104.9	83.7	97.9	105.9	90.8	100.9	105.0	89.9	100.0	105.0	89.9	100.0
06	WOOD, PLASTICS & COMPOSITES	115.9	62.4	85.0	114.3	99.0	105.5	94.6	88.8	91.3	102.6	87.0	93.6	126.1	92.0	106.4	126.1	92.0	106.4
07	THERMAL & MOISTURE PROTECTION	109.2	65.5	91.4	111.5	98.9	106.4	105.4	84.3	96.8	110.3	91.0	102.4	105.4	93.9	100.7	105.4	93.9	100.7
08	OPENINGS	87.3	58.0	79.9	94.4	93.3	94.1	87.2	77.7	84.8	84.9	85.4	85.0	93.4	79.7	89.9	93.4	79.7	89.9
0920	Plaster & Gypsum Board	179.4	61.1	94.9	178.2	98.9	121.6	144.8	88.5	104.6	143.4	86.6	102.8	149.8	91.5	108.2	149.8	91.5	108.2
0950, 0980	Ceilings & Acoustic Treatment	103.1	61.1	75.3	100.3	98.9	99.4	117.5	88.5	98.3	95.8	86.6	89.7	94.9	91.5	92.7	94.9	91.5	92.7
0960	Flooring	128.0	74.3	112.2	132.5	109.7	125.8	121.1	67.4	105.4	124.3	103.8	118.3	132.5	102.5	123.7	132.5	102.5	123.7
0970, 0990	Wall Finishes & Painting/Coating	112.0	71.6	87.1	112.0	109.5	110.5	112.0	87.3	96.8	112.0	101.5	105.5	112.0	95.0	101.5	112.0	95.0	101.5
09	FINISHES	119.7	66.4	90.0	120.8	103.1	110.9	117.8	84.8	99.4	112.4	92.2	101.2	115.3	94.6	103.8	115.3	94.6	103.8
COVERS	DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	140.5	68.9	126.3	140.5	80.5	128.6	140.5	75.1	127.5	140.5	102.1	132.9	140.5	90.7	130.6	140.5	90.7	130.6
21, 22, 23	FIRE SUPPRESSION, PLUMBING & HVAC	103.2	78.9	93.4	103.2	113.8	107.5	99.8	82.3	92.7	103.2	100.0	101.9	103.8	96.1	100.7	103.2	96.1	100.7
26, 27, 3370	ELECTRICAL, COMMUNICATIONS & UTIL.	127.7	84.5	105.4	120.2	96.9	108.2	121.9	87.3	104.1	118.9	94.9	106.5	117.6	75.9	96.1	117.6	75.9	96.1
MF2010	WEIGHTED AVERAGE	116.6	75.3	98.4	117.4	101.6	110.5	113.2	86.2	101.3	112.6	94.5	104.6	114.8	91.1	104.4	114.9	91.1	104.4

DIVISION		CANADA																	
		ST CATHARINES, ONTARIO			ST JEROME, QUEBEC			ST JOHN'S, NEWFOUNDLAND			SUDBURY, ONTARIO			SUMMERSIDE, PRINCE EDWARD ISLAND			SYDNEY, NOVA SCOTIA		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
015433	CONTRACTOR EQUIPMENT		101.7	101.7		102.6	102.6		103.3	103.3		101.7	101.7		101.6	101.6		90.7	100.6
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	101.1	101.9	101.7	92.5	100.9	98.3	113.3	99.7	103.9	101.2	101.3	101.3	105.2	96.8	99.4		90.7	100.6
0310	Concrete Forming & Accessories	115.6	94.0	96.8	128.1	92.0	96.7	104.7	72.5	76.7	112.0	88.0	91.1	97.7	61.0	65.8	97.4	61.0	65.8
0320	Concrete Reinforcing	111.5	85.8	98.6	157.4	82.4	119.6	160.7	64.0	112.0	112.4	84.3	98.2	146.6	48.9	97.4	148.8	48.9	97.4
0330	Cast-in-Place Concrete	134.4	95.6	119.1	130.1	101.4	118.8	173.5	85.2	138.7	135.5	92.0	118.4	161.2	63.4	122.6	130.9	63.4	122.6
03	CONCRETE	119.5	93.1	106.6	131.3	93.5	112.9	164.8	75.9	121.5	120.0	89.0	104.9	152.9	60.4	101.8	129.7	60.4	101.8
04	MASONRY	159.3	100.4	123.4	158.9	90.6	117.2	164.8	77.3	111.4	159.4	95.6	120.4	158.1	65.2	101.4	155.9	65.2	101.4
05	METALS	105.9	92.0	101.3	105.0	89.9	100.0	113.8	79.9	102.6	105.9	91.6	101.1	105.8	69.5	93.8	105.8	69.5	93.8
06	WOOD, PLASTICS & COMPOSITES	106.4	93.4	98.9	126.1	92.0	106.4	95.8	71.2	81.6	102.6	87.0	93.6	87.7	60.4	71.9	87.4	60.4	71.9
07	THERMAL & MOISTURE PROTECTION	110.8	96.4	105.0	105.4	93.9	100.7	110.3	75.5	96.2	110.3	90.9	102.4	106.0	63.9	88.9	106.5	63.9	88.9
08	OPENINGS	84.0	90.5	85.6	93.4	79.7	89.9	99.7	66.2	91.2	84.9	85.4	85.0	95.7	52.1	84.7	89.9	52.1	84.7
0920	Plaster & Gypsum Board	137.6	93.2	105.9	146.8	91.5	107.3	172.6	70.1	99.4	143.4	86.6	102.8	156.4	59.1	96.9	155.9	59.1	96.9
0950, 0980	Ceilings & Acoustic Treatment	100.3	93.2	95.6	94.9	91.5	92.7	110.3	70.1	83.8	95.8	86.6	89.7	95.8	59.1	71.5	95.8	59.1	71.5
0960	Flooring	126.9	101.8	119.5	132.5	102.5	123.7	116.5	61.0	100.2	124.3	103.8	118.3	112.2	64.8	98.2	112.1	64.8	98.2
0970, 0990	Wall Finishes & Painting/Coating	112.0	100.9	105.2	112.0	95.0	101.5	112.0	74.7	89.0	112.0	92.1	99.79						

Cost Indexes

DIVISION	CANADA																	
	THUNDER BAY, ONTARIO			TIMMINS, ONTARIO			TORONTO, ONTARIO			TROIS RIVIERES, QUEBEC			TRURO, NOVA SCOTIA			VANCOUVER, BRITISH COLUMBIA		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	101.7	101.7	101.7	101.7	101.7	101.7	104.0	104.0	104.0	102.6	102.6	102.6	101.7	101.7	101.7	112.1	112.1	112.1
SITE & INFRASTRUCTURE, DEMOLITION	106.5	101.9	103.3	112.7	100.8	104.5	139.0	105.9	116.2	93.2	100.9	98.5	97.2	99.3	98.6	121.1	108.5	112.4
Concrete Forming & Accessories	123.1	91.6	95.7	123.0	91.1	95.2	132.2	99.5	103.7	128.1	92.1	96.8	97.4	75.0	77.9	126.6	87.0	92.2
Concrete Reinforcing	99.7	85.3	92.4	175.1	85.5	129.9	162.1	86.5	124.0	148.8	82.4	115.3	148.8	48.8	98.4	152.8	79.7	116.0
Cast-in-Place Concrete	148.0	94.0	126.7	163.5	90.3	134.7	154.3	114.8	138.8	135.6	101.5	122.1	169.8	74.8	132.4	164.0	101.0	139.2
CONCRETE	128.2	91.4	110.3	150.5	89.9	121.0	144.5	102.2	123.9	132.7	93.6	113.7	149.3	70.7	111.0	153.3	90.8	122.9
MASONRY	160.1	99.7	123.2	163.3	93.5	120.7	193.0	105.0	139.3	159.3	90.6	117.4	159.0	74.8	107.6	177.9	93.9	126.6
METALS	105.7	90.9	100.8	106.7	91.6	101.7	127.1	92.9	115.8	105.0	90.0	100.1	105.8	76.3	96.1	157.9	91.2	135.9
WOOD, PLASTICS & COMPOSITES	115.4	90.3	100.9	115.2	91.6	101.6	115.4	98.1	105.4	126.1	92.0	106.4	87.4	74.3	79.8	114.9	85.2	97.7
THERMAL & MOISTURE PROTECTION	111.0	93.1	103.8	111.5	89.4	102.5	123.5	100.4	114.1	105.4	93.9	100.7	106.5	73.1	92.9	133.7	89.0	115.5
OPENINGS	82.9	88.1	84.2	92.2	87.4	91.0	92.2	96.5	93.3	93.4	84.6	91.2	83.9	67.7	79.9	95.1	84.3	92.4
Plaster & Gypsum Board	170.4	89.9	112.9	155.0	91.3	109.5	176.3	98.0	120.3	185.7	91.5	118.4	155.9	73.4	96.9	162.8	84.1	106.6
Ceilings & Acoustic Treatment	95.8	89.9	91.9	95.8	91.3	92.8	132.8	98.0	109.8	94.9	91.5	92.7	95.8	73.4	81.0	157.5	84.1	109.0
Flooring	132.5	109.0	125.6	132.5	100.3	123.1	135.8	111.6	128.7	132.5	105.2	123.7	112.1	69.3	99.5	135.0	98.8	124.4
Wall Finishes & Painting/Coating	112.0	89.5	98.1	112.0	94.5	101.2	114.0	104.9	108.4	112.0	95.0	101.5	112.0	66.5	83.9	111.9	81.4	93.1
FINISHES	118.4	94.8	105.3	117.1	93.6	104.0	131.6	102.4	115.4	119.5	94.6	105.6	110.3	73.2	89.6	133.9	88.2	108.4
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	140.5	78.7	128.2	140.5	77.4	128.0	140.5	105.7	133.6	140.5	90.7	130.6	140.5	70.8	126.7	140.5	99.5	132.4
FIRE SUPPRESSION, PLUMBING & HVAC	99.8	82.7	92.8	103.2	103.6	103.4	100.6	97.7	99.4	103.2	96.1	100.4	103.2	89.2	97.5	100.6	84.7	94.2
ELECTRICAL, COMMUNICATIONS & UTIL.	117.5	84.5	100.5	118.9	94.9	106.5	114.0	88.1	100.7	119.8	75.9	97.1	117.3	67.3	91.5	115.1	77.7	95.8
WEIGHTED AVERAGE	113.1	90.2	103.0	117.9	94.9	107.8	123.0	98.8	112.3	115.1	91.3	104.6	115.1	77.8	98.6	128.1	89.1	110.9

DIVISION	CANADA																	
	VICTORIA, BRITISH COLUMBIA			WHITEHORSE, YUKON			WINDSOR, ONTARIO			WINNIPEG, MANITOBA			YARMOUTH, NOVA SCOTIA			YELLOWKNIFE, NWT		
	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
CONTRACTOR EQUIPMENT	108.8	108.8	108.8	101.8	101.8	101.8	101.7	101.7	101.7	105.9	105.9	105.9	101.7	101.7	101.7	101.7	101.7	101.7
SITE & INFRASTRUCTURE, DEMOLITION	121.1	108.0	112.1	108.8	97.7	101.2	96.3	101.8	100.1	121.5	101.6	107.8	97.0	99.3	98.5	128.6	102.3	110.5
Concrete Forming & Accessories	111.9	86.4	89.7	107.0	62.3	68.1	123.1	89.9	94.3	131.6	69.8	77.8	97.4	75.0	77.9	106.9	85.3	88.2
Concrete Reinforcing	116.8	79.6	98.0	115.8	62.7	89.0	109.3	84.6	96.9	143.8	58.2	100.7	148.8	48.8	98.4	118.4	66.6	92.3
Cast-in-Place Concrete	147.1	100.3	128.6	162.2	72.9	127.0	137.7	94.9	120.8	192.3	75.4	146.2	168.1	74.8	131.3	245.0	92.6	185.0
CONCRETE	151.9	90.1	121.8	133.5	66.8	101.0	121.3	90.8	106.4	162.7	70.1	117.6	148.4	70.7	110.5	175.5	84.6	131.2
MASONRY	167.0	93.9	122.4	170.1	65.3	106.2	159.5	98.5	122.3	188.0	70.9	116.5	158.8	74.8	107.6	177.2	79.2	117.4
METALS	107.3	87.2	100.7	110.9	75.6	99.2	105.7	91.4	101.0	154.6	75.5	128.5	105.8	76.3	96.1	109.7	81.6	100.4
WOOD, PLASTICS & COMPOSITES	98.3	85.1	90.7	96.2	60.9	75.8	115.4	88.8	100.0	113.4	70.6	88.7	87.4	74.3	79.8	96.2	87.0	90.9
THERMAL & MOISTURE PROTECTION	114.9	88.8	104.3	105.3	64.9	88.9	110.8	92.2	103.3	116.3	72.4	98.5	106.5	73.1	92.9	108.2	83.1	98.0
OPENINGS	89.1	80.4	86.9	86.7	57.9	79.5	82.6	87.8	84.0	93.4	62.8	85.7	83.9	67.7	79.9	86.7	73.1	83.3
Plaster & Gypsum Board	136.1	84.1	99.0	124.3	59.5	78.0	158.4	88.4	108.4	161.4	69.1	95.5	155.9	73.4	96.9	175.0	86.5	111.8
Ceilings & Acoustic Treatment	95.8	84.1	88.1	100.3	59.5	73.4	95.8	88.4	90.9	142.8	69.1	94.1	95.8	73.4	81.0	130.2	86.5	101.3
Flooring	127.3	78.5	113.0	121.1	63.2	104.1	132.5	106.1	124.8	133.7	74.8	116.4	112.1	69.3	99.5	121.1	96.9	114.0
Wall Finishes & Painting/Coating	112.0	81.4	93.1	112.0	58.1	78.7	112.0	93.9	100.8	112.0	56.2	77.6	112.0	66.5	83.9	112.0	84.6	95.1
FINISHES	115.7	84.7	98.4	111.7	61.7	83.9	116.6	93.6	103.8	129.7	69.6	96.2	110.3	73.2	89.6	124.3	86.8	103.4
DIVS. 10 - 14, 25, 28, 41, 43, 44, 46	140.5	74.5	127.4	140.5	67.9	126.1	140.5	78.1	128.1	140.5	70.5	126.6	140.5	70.8	126.7	140.5	72.5	127.0
FIRE SUPPRESSION, PLUMBING & HVAC	103.2	84.6	95.7	103.3	79.0	93.5	99.8	82.3	92.7	100.5	67.9	87.3	103.2	89.2	97.5	103.6	100.9	102.5
ELECTRICAL, COMMUNICATIONS & UTIL.	118.3	77.7	97.4	127.6	65.0	95.3	122.0	86.0	103.4	117.9	68.3	92.3	119.4	67.3	92.5	131.3	90.6	110.3
WEIGHTED AVERAGE	118.1	87.2	104.5	116.5	71.3	96.6	112.2	90.0	102.4	128.4	72.4	103.7	115.2	77.8	98.7	123.5	88.9	108.3

Location Factors

Costs shown in RSMeans cost data publications are based on national averages for materials and installation. To adjust these costs to a specific location, simply multiply the base cost by the factor and divide

by 100 for that city. The data is arranged alphabetically by state and postal zip code numbers. For a city not listed, use the factor for a nearby city with similar economic characteristics.

STATE/ZIP	CITY	MAT.	INST.	TOTAL
ALABAMA				
350-352	Birmingham	97.6	74.6	87.4
354	Tuscaloosa	96.6	58.6	79.9
355	Jasper	96.8	57.6	79.5
356	Decatur	96.5	60.1	80.5
357-358	Huntsville	96.6	68.1	84.1
359	Gadsden	96.6	57.6	79.4
360-361	Montgomery	97.4	56.6	79.4
362	Anniston	96.0	64.5	82.1
363	Dothan	96.6	52.0	76.9
364	Evergreen	96.2	53.4	77.3
365-366	Mobile	97.7	67.5	84.4
367	Selma	96.3	51.9	76.7
368	Phenix City	97.1	55.9	78.9
369	Butler	96.5	52.0	76.9
ALASKA				
995-996	Anchorage	124.5	114.0	119.9
997	Fairbanks	122.4	115.0	119.1
998	Juneau	120.3	113.9	117.5
999	Ketchikan	134.1	113.9	125.2
ARIZONA				
850,853	Phoenix	97.9	76.6	88.5
851,852	Mesa/Tempe	97.4	72.4	86.3
855	Globe	97.4	62.5	82.0
856-857	Tucson	96.1	72.1	85.5
859	Show Low	97.5	62.9	82.2
860	Flagstaff	100.3	73.9	88.7
863	Prescott	98.2	62.1	82.2
864	Kingman	96.4	73.4	86.3
865	Chambers	96.5	63.0	81.7
ARKANSAS				
716	Pine Bluff	96.7	63.8	82.2
717	Camden	94.1	50.1	74.7
718	Texarkana	95.9	51.3	76.2
719	Hot Springs	93.4	52.9	75.5
720-722	Little Rock	97.0	65.0	82.9
723	West Memphis	95.8	62.8	81.2
724	Jonesboro	96.8	60.7	80.9
725	Batesville	94.2	56.1	77.4
726	Harrison	95.5	52.3	76.5
727	Fayetteville	92.9	54.1	75.8
728	Russellville	94.1	55.4	77.0
729	Fort Smith	97.1	62.5	81.8
CALIFORNIA				
900-902	Los Angeles	100.1	115.5	106.9
903-905	Inglewood	95.3	113.1	103.2
906-908	Long Beach	96.9	113.2	104.1
910-912	Pasadena	95.2	113.6	103.3
913-916	Van Nuys	98.1	113.5	104.9
917-918	Alhambra	97.1	113.5	104.3
919-921	San Diego	99.3	107.8	103.0
922	Palm Springs	96.4	110.9	102.8
923-924	San Bernardino	94.3	110.5	101.4
925	Riverside	98.9	112.4	104.9
926-927	Santa Ana	96.1	110.8	102.6
928	Anaheim	98.9	112.8	105.1
930	Oxnard	100.2	112.3	105.5
931	Santa Barbara	99.5	112.3	105.1
932-933	Bakersfield	100.0	109.5	104.2
934	San Luis Obispo	99.7	109.4	104.0
935	Mojave	97.0	106.9	101.3
936-938	Fresno	100.5	115.7	107.2
939	Salinas	100.5	122.7	110.3
940-941	San Francisco	108.5	142.3	123.4
942,956-958	Sacramento	102.9	118.6	109.9
943	Palo Alto	101.3	129.9	113.9
944	San Mateo	103.8	131.3	115.9
945	Vallejo	102.2	128.2	113.7
946	Oakland	106.3	133.9	118.5
947	Berkeley	105.5	133.2	117.7
948	Richmond	104.7	129.7	115.7
949	San Rafael	106.0	129.5	116.4
950	Santa Cruz	105.0	122.8	112.9

STATE/ZIP	CITY	MAT.	INST.	TOTAL
CALIFORNIA (CONTD)				
951	San Jose	103.2	135.1	117.7
952	Stockton	100.7	117.2	108.8
953	Modesto	100.7	116.9	107.7
954	Santa Rosa	100.3	135.0	119.1
955	Eureka	101.6	114.2	107.7
959	Marysville	100.9	114.4	106.6
960	Redding	102.8	114.4	107.7
961	Susanville	101.5	114.4	107.7
COLORADO				
800-802	Denver	101.7	84.7	94.4
803	Boulder	98.6	82.9	91.1
804	Golden	100.7	81.7	92.2
805	Fort Collins	102.6	79.1	93.2
806	Greeley	100.0	78.2	90.1
807	Fort Morgan	99.3	82.0	91.1
808-809	Colorado Springs	101.6	81.7	92.2
810	Pueblo	100.4	80.8	91.1
811	Alamosa	101.5	76.7	90.1
812	Salida	101.3	78.3	91.1
813	Durango	101.9	79.6	92.2
814	Montrose	100.8	79.3	91.1
815	Grand Junction	104.2	79.6	93.2
816	Glenwood Springs	101.6	82.2	93.2
CONNECTICUT				
060	New Britain	101.1	118.6	109.8
061	Hartford	102.0	118.7	109.8
062	Willimantic	101.7	118.4	109.8
063	New London	97.6	118.6	106.6
064	Meriden	99.7	118.6	106.6
065	New Haven	102.8	118.6	109.8
066	Bridgeport	102.2	118.7	109.8
067	Waterbury	101.8	118.6	109.8
068	Norwalk	101.8	126.3	112.3
069	Stamford	101.9	126.3	112.3
D.C.				
200-205	Washington	102.4	92.8	96.6
DELAWARE				
197	Newark	99.4	107.9	103.6
198	Wilmington	99.1	108.0	103.6
199	Dover	99.5	107.9	103.6
FLORIDA				
320,322	Jacksonville	98.7	69.4	85.1
321	Daytona Beach	98.8	75.2	88.8
323	Tallahassee	99.4	59.3	81.1
324	Panama City	100.1	60.5	82.2
325	Pensacola	102.6	64.1	85.1
326,344	Gainesville	100.4	69.7	86.6
327-328,347	Orlando	101.8	73.0	85.1
329	Melbourne	101.5	78.2	91.1
330-332,340	Miami	99.6	76.7	88.8
333	Fort Lauderdale	98.1	75.9	88.8
334,349	West Palm Beach	96.7	74.4	86.6
335-336,346	Tampa	99.8	82.1	92.2
337	St. Petersburg	102.5	65.8	88.8
338	Lakeland	99.0	82.0	91.1
339,341	Fort Myers	98.1	75.8	88.8
342	Sarasota	100.0	77.3	90.1
GEORGIA				
300-303,399	Atlanta	98.0	76.5	88.8
304	Statesboro	97.4	54.0	76.6
305	Gainesville	96.1	64.0	81.1
306	Athens	95.5	64.2	80.1
307	Dalton	97.6	60.1	79.1
308-309	Augusta	96.7	64.5	80.1
310-312	Macon	96.4	64.2	80.1
313-314	Savannah	98.1	60.5	81.1
315	Waycross	97.3	61.4	81.1
316	Valdosta	97.6	60.8	81.1
317,398	Albany	97.6	61.5	81.1
318-319	Columbus	97.5	64.6	81.1

Location Factors

STATE/ZIP	CITY	MAT.	INST.	TOTAL
HI	Hilo	110.3	121.2	115.1
	Honolulu	113.3	121.2	116.8
GUAM & POSS.	Guam	131.1	60.8	100.1
	Pocatello	100.3	72.2	87.9
ID	Twin Falls	101.3	52.5	79.8
	Idaho Falls	98.9	58.7	81.2
ID	Lewiston	107.9	79.7	95.5
	Boise	99.3	72.4	87.4
ID	Coeur d'Alene	107.2	76.3	93.6
IL	North Suburban	98.7	132.4	113.5
	Joliet	98.6	136.4	115.3
IL	South Suburban	98.7	132.4	113.5
	Chicago	99.1	138.9	116.6
IL	Kankakee	94.6	127.4	109.1
	Rockford	98.4	124.3	109.8
IL	Rock Island	95.9	98.9	97.2
	La Salle	97.0	120.8	107.5
IL	Galesburg	96.9	104.8	100.4
	Peoria	99.5	108.3	103.4
IL	Bloomington	96.3	109.3	102.0
	Champaign	99.8	108.1	103.5
IL	East St. Louis	95.1	108.3	100.9
	Quincy	96.0	100.1	97.8
IL	Effingham	95.3	103.9	99.1
	Decatur	97.4	106.3	101.3
IL	Springfield	97.8	107.1	101.9
	Centralia	93.4	107.0	99.4
IL	Carbondale	93.1	102.0	97.1
IN	Anderson	96.1	83.4	90.5
	Indianapolis	99.2	85.6	93.2
IN	Gary	97.6	108.5	102.4
	South Bend	95.7	82.9	90.1
IN	Fort Wayne	96.7	78.7	88.8
	Kokomo	93.7	82.2	88.6
IN	Lawrenceburg	92.5	79.6	86.8
	New Albany	93.6	76.6	86.1
IN	Columbus	96.0	81.5	89.6
	Muncie	97.1	82.6	90.7
IN	Bloomington	98.4	82.9	91.6
	Washington	94.4	83.7	89.7
IN	Evansville	96.0	86.5	91.8
	Terre Haute	96.7	86.9	92.4
IN	Lafayette	95.7	83.2	90.2
IA	Des Moines	99.1	84.7	92.7
	Mason City	97.6	67.8	84.5
IA	Fort Dodge	97.9	59.7	81.0
	Waterloo	99.7	72.2	87.6
IA	Creston	98.1	78.8	89.6
	Sioux City	100.5	70.7	87.3
IA	Sibley	98.9	56.5	80.2
	Spencer	100.6	56.5	81.2
IA	Carroll	97.4	72.4	86.4
	Council Bluffs	101.7	78.8	91.6
IA	Shenandoah	98.2	72.3	86.8
	Dubuque	99.9	79.7	91.0
IA	Decorah	98.5	65.7	84.0
	Cedar Rapids	100.7	84.0	93.3
IA	Ottumwa	98.4	70.7	86.2
	Burlington	97.6	77.3	88.6
IA	Davenport	99.6	90.4	95.5
KS	Kansas City	99.5	95.4	97.7
	Topeka	99.2	64.5	83.9
KS	Fort Scott	97.7	73.9	87.2
	Emporia	97.9	69.7	85.4
KS	Belleville	99.6	65.5	84.6
	Wichita	98.4	64.1	83.3
KS	Independence	99.2	69.5	86.1
	Salina	100.0	66.9	85.4
KS	Hutchinson	94.8	65.4	81.8
	Hays	98.8	65.8	84.3
KS	Colby	99.5	65.8	84.6

STATE/ZIP	CITY	MAT.	INST.	TOTAL
KANSAS (CONT'D)				
678	Dodge City	101.2	66.8	86.0
679	Liberal	98.7	65.8	84.2
KENTUCKY				
400-402	Louisville	97.8	83.5	91.5
403-405	Lexington	96.5	81.8	90.0
406	Frankfort	97.2	83.5	91.2
407-409	Corbin	93.7	72.5	84.4
410	Covington	94.4	95.2	94.8
411-412	Ashland	93.3	98.5	95.6
413-414	Campton	94.5	81.2	88.6
415-416	Pikeville	95.6	91.7	93.9
417-418	Hazard	93.9	81.5	88.4
420	Paducah	92.6	85.7	89.6
421-422	Bowling Green	95.0	83.5	90.0
423	Owensboro	95.2	87.9	92.0
424	Henderson	92.4	87.9	90.4
425-426	Somerses	91.9	79.1	86.2
427	Elizabethtown	91.4	83.9	88.1
LOUISIANA				
700-701	New Orleans	102.3	70.5	88.3
703	Thibodaux	100.2	63.4	84.0
704	Hammond	97.5	56.1	79.3
705	Lafayette	99.9	61.5	83.0
706	Lake Charles	100.1	64.1	84.2
707-708	Baton Rouge	101.2	63.0	84.4
710-711	Shreveport	96.7	56.3	78.9
712	Monroe	97.0	53.6	77.9
713-714	Alexandria	97.1	53.5	77.9
MAINE				
039	Kittery	94.8	80.1	88.3
040-041	Portland	99.5	78.9	90.4
042	Lewiston	98.1	78.9	89.7
043	Augusta	97.6	79.8	89.8
044	Bangor	97.7	78.9	89.4
045	Bath	96.0	79.5	88.7
046	Machias	95.5	79.0	88.2
047	Houlton	95.7	78.9	88.3
048	Rockland	94.7	79.4	88.0
049	Waterville	96.1	79.8	88.9
MARYLAND				
206	Waldorf	98.5	82.4	91.4
207-208	College Park	98.5	84.2	92.2
209	Silver Spring	97.7	82.3	90.9
210-212	Baltimore	100.2	84.7	93.3
214	Annapolis	100.2	83.2	92.7
215	Cumberland	95.8	80.2	89.0
216	Easton	97.5	70.3	85.5
217	Hagerstown	96.8	82.9	90.7
218	Salisbury	97.9	65.3	83.5
219	Elkton	94.7	84.3	90.1
MASSACHUSETTS				
010-011	Springfield	100.0	108.7	103.9
012	Pittsfield	99.6	105.3	102.1
013	Greenfield	97.3	108.4	102.2
014	Fitchburg	96.1	123.3	108.1
015-016	Worcester	100.0	123.5	110.4
017	Framingham	95.5	129.9	110.7
018	Lowell	99.4	128.5	112.3
019	Lawrence	100.5	129.0	113.1
020-022, 024	Boston	102.2	136.8	117.5
023	Brockton	100.8	124.7	111.4
025	Buzzards Bay	94.9	122.1	106.9
026	Hyannis	98.0	122.1	108.6
027	New Bedford	99.9	122.2	109.7
MICHIGAN				
480,483	Royal Oak	93.4	106.2	99.1
481	Ann Arbor	95.8	108.1	101.2
482	Detroit	97.4	110.1	103.0
484-485	Flint	95.5	97.1	96.2
486	Saginaw	95.0	93.5	94.4
487	Bay City	95.2	93.6	94.5
488-489	Lansing	96.4	95.1	95.9
490	Battle Creek	96.0	89.2	93.0
491	Kalamazoo	96.3	87.4	92.4
492	Jackson	94.3	95.9	95.0
493,495	Grand Rapids	97.2	83.0	90.9
494	Muskegon	94.9	84.9	90.5

Location Factors

STATE/ZIP	CITY	MAT.	INST.	TOTAL
MICHIGAN (CONTD)				
496	Traverse City	93.6	78.7	87.0
497	Gaylord	94.7	72.8	85.1
498-499	Iron mountain	96.7	87.8	92.8
MINNESOTA				
550-551	Saint Paul	101.1	121.5	110.1
553-555	Minneapolis	102.1	123.0	111.3
556-558	Duluth	100.1	112.0	105.4
559	Rochester	100.9	107.6	103.8
560	Mankato	97.7	104.6	100.7
561	Windom	96.4	93.8	95.2
562	Willmar	96.0	105.1	100.0
563	St. Cloud	97.6	120.8	107.9
564	Brainerd	97.6	105.3	101.0
565	Detroit Lakes	99.4	99.3	99.4
566	Bemidji	98.7	101.3	99.9
567	Thief River Falls	98.3	95.8	97.2
MISSISSIPPI				
386	Clarksdale	96.4	55.5	78.4
387	Greenville	100.3	65.1	84.7
388	Tupelo	98.0	57.9	80.4
389	Greenwood	97.6	55.1	78.8
390-392	Jackson	97.4	64.4	82.9
393	Meridian	96.7	66.1	83.2
394	Laurel	97.9	58.8	80.6
395	Biloxi	98.3	60.2	81.5
396	Mccomb	96.3	54.6	77.9
397	Columbus	97.8	56.9	79.8
MISSOURI				
630-631	St. Louis	100.0	105.7	102.5
633	Bowling Green	98.4	90.5	94.9
634	Hannibal	97.3	87.1	92.8
635	Kirkville	100.4	83.8	93.1
636	Flat River	99.4	92.9	96.5
637	Cape Girardeau	99.7	89.6	95.3
638	Sikeston	97.5	85.5	92.2
639	Poplar Bluff	97.0	86.8	92.5
640-641	Kansas City	100.1	108.0	103.6
644-645	St. Joseph	99.3	91.8	96.0
646	Chillicothe	96.1	70.0	84.6
647	Harrisonville	95.7	104.9	99.6
648	Joplin	98.2	70.4	85.9
650-651	Jefferson City	96.2	90.5	93.7
652	Columbia	97.7	92.4	95.4
653	Sedalia	96.6	92.8	94.9
654-655	Rolla	95.2	87.9	92.0
656-658	Springfield	98.5	79.9	90.3
MONTANA				
590-591	Billings	103.5	74.7	90.8
592	Wolf Point	103.1	67.5	87.4
593	Miles City	100.7	69.1	86.8
594	Great Falls	105.0	75.3	91.9
595	Havre	102.0	70.2	88.0
596	Helena	102.6	72.0	89.1
597	Butte	103.5	73.5	90.3
598	Missoula	100.8	72.2	88.2
599	Kalispell	99.6	70.1	86.6
NEBRASKA				
680-681	Omaha	100.0	79.2	90.8
683-685	Lincoln	98.0	73.6	87.2
686	Columbus	96.8	71.7	85.7
687	Norfolk	98.5	75.1	88.2
688	Grand Island	98.7	78.4	89.8
689	Hastings	97.8	79.3	89.6
690	Mccook	97.6	70.7	85.7
691	North Platte	98.1	79.4	89.9
692	Valentine	99.7	67.6	85.6
693	Alliance	99.7	65.8	84.8
NEVADA				
889-891	Las Vegas	99.8	110.7	104.6
893	Ely	98.5	98.1	98.3
894-895	Reno	98.7	93.7	96.5
897	Carson City	97.8	93.5	95.9
898	Elko	97.2	85.3	92.0
NEW HAMPSHIRE				
030	Nashua	100.2	86.7	94.3
031	Manchester	100.7	86.7	94.5

STATE/ZIP	CITY	MAT.	INST.	TOTAL
NEW HAMPSHIRE (CONTD)				
032-033	Concord	98.6	82.4	91.5
034	Keene	96.9	49.4	76.0
035	Littleton	96.5	56.6	78.9
036	Charleston	96.3	47.1	74.4
037	Claremont	95.3	47.1	74.4
038	Portsmouth	97.8	91.2	94.9
NEW JERSEY				
070-071	Newark	102.7	124.6	112.2
072	Elizabeth	100.6	124.5	111.2
073	Jersey City	99.4	124.4	110.9
074-075	Paterson	101.4	124.5	111.6
076	Hackensack	99.4	124.5	110.5
077	Long Branch	99.0	123.3	109.7
078	Dover	99.7	124.6	110.7
079	Summit	99.6	124.7	110.1
080,083	Vineland	97.6	122.4	109.5
081	Camden	99.4	122.6	109.6
082,084	Atlantic City	98.1	122.1	108.7
085-086	Trenton	99.6	123.6	110.2
087	Point Pleasant	99.7	122.5	109.7
088-089	New Brunswick	100.1	124.3	110.8
NEW MEXICO				
870-872	Albuquerque	98.7	73.6	87.7
873	Gallup	98.8	73.6	87.7
874	Farmington	99.4	73.6	88.4
875	Santa Fe	99.4	73.6	88.4
877	Las Vegas	97.3	73.6	86.3
878	Socorro	96.8	73.6	86.1
879	Truth/Consequences	97.0	70.3	83.5
880	Las Cruces	96.1	69.6	84.4
881	Clovis	97.4	73.5	86.5
882	Roswell	99.3	73.6	88.4
883	Carriazo	99.4	73.6	88.4
884	Tucuman	98.1	73.5	87.2
NEW YORK				
100-102	New York	104.8	166.9	132.2
103	Staten Island	100.8	163.6	128.1
104	Bronx	98.9	163.6	127.7
105	Mount Vernon	98.6	133.0	113.1
106	White Plains	98.8	133.0	113.1
107	Yonkers	103.5	133.1	116.4
108	New Rochelle	99.0	133.0	114.1
109	Suffern	98.7	122.0	109.4
110	Queens	101.4	163.8	128.1
111	Long Island City	103.0	163.8	129.1
112	Brooklyn	103.4	163.8	130.1
113	Flushing	102.9	163.8	129.1
114	Jamaica	101.1	163.8	128.1
115,117,118	Hicksville	101.3	145.6	120.1
116	Far Rockaway	103.1	163.8	129.1
119	Riverhead	102.1	146.1	121.1
120-122	Albany	96.7	96.4	96.4
123	Schenectady	97.8	96.1	97.7
124	Kingston	100.9	117.4	108.1
125-126	Poughkeepsie	100.1	128.4	112.1
127	Monticello	99.4	118.0	107.1
128	Glens Falls	92.3	92.6	92.6
129	Plattsburgh	96.9	87.0	92.2
130-132	Syracuse	98.9	94.5	97.4
133-135	Utica	96.8	88.2	93.3
136	Watertown	98.5	93.5	96.5
137-139	Binghamton	98.4	89.2	94.4
140-142	Buffalo	100.3	104.0	101.1
143	Niagara Falls	97.9	106.1	101.1
144-146	Rochester	100.0	94.0	97.7
147	Jamestown	96.9	86.4	92.2
148-149	Elmira	96.7	91.0	94.4
NORTH CAROLINA				
270,272-274	Greensboro	99.7	47.3	76.7
271	Winston-Salem	99.5	46.0	75.5
275-276	Raleigh	99.8	47.6	76.7
277	Durham	100.8	47.9	77.7
278	Rocky Mount	96.8	42.5	72.2
279	Elizabeth City	97.8	40.6	72.2
280	Gastonia	98.6	45.4	75.5
281-282	Charlotte	99.4	47.8	76.7
283	Fayetteville	100.7	49.4	78.7
284	Wilmington	97.4	48.5	75.5
285	Kinston	95.2	43.8	72.2

Location Factors

STATE/ZIP	CITY	MAT.	INST.	TOTAL
CAROLINA (CONTD)				
	Hickory	95.5	42.3	72.1
	Asheville	97.8	45.5	74.7
	Murphy	96.4	33.2	68.5
DAKOTA				
	Fargo	102.1	65.7	86.0
	Grand Forks	102.8	53.1	80.9
	Devils Lake	101.7	57.0	82.0
	Jamestown	101.9	46.4	77.4
	Bismarck	100.7	64.4	84.7
	Dickinson	102.7	58.8	83.3
	Minot	102.7	70.2	88.4
	Williston	101.1	58.8	82.4
	Columbus	97.8	90.6	94.6
	Marion	93.9	85.4	90.2
	Toledo	97.9	98.3	98.1
	Zanesville	94.5	86.1	90.8
	Steubenville	96.1	93.5	95.0
	Lorain	97.7	91.3	94.9
	Cleveland	97.9	99.8	98.7
	Akron	98.7	94.5	96.9
	Youngstown	98.1	90.1	94.6
	Canton	98.2	86.3	93.0
	Mansfield	95.2	87.4	91.7
	Hamilton	96.6	85.6	91.7
	Cincinnati	96.9	85.8	92.0
	Dayton	96.7	85.2	91.6
	Springfield	96.6	85.8	91.8
	Chillicothe	95.2	93.4	94.4
	Athens	98.0	83.1	91.4
	Lima	98.4	86.1	93.0
KANSAS				
	Oklahoma City	97.8	60.6	81.4
	Ardmore	95.0	60.1	79.6
	Lawton	97.5	61.4	81.6
	Clinton	96.5	58.8	79.8
	Enid	97.3	58.7	80.3
	Woodward	95.1	58.8	79.1
	Guymon	96.2	31.0	67.5
	Tulsa	97.4	53.5	78.0
	Miami	93.8	67.9	82.3
	Muskogee	96.7	39.3	71.4
	McAlester	93.6	50.6	74.6
	Ponca City	94.1	58.7	78.5
	Durant	94.1	57.7	78.1
	Shawnee	95.7	56.5	78.4
	Poteau	93.2	61.4	79.2
OREGON				
	Portland	98.8	100.3	99.5
	Salem	98.6	98.6	98.6
	Eugene	98.6	98.5	98.6
	Medford	100.1	97.0	98.7
	Klamath Falls	99.8	97.0	98.6
	Bend	98.8	98.6	98.7
	Pendleton	94.1	100.0	96.7
	Vale	91.9	90.5	91.3
PENNSYLVANIA				
	Pittsburgh	99.1	104.6	101.5
	Washington	95.9	102.1	98.6
	Uniontown	96.4	100.8	98.3
	Bedford	97.2	91.7	94.8
	Greensburg	97.2	100.3	98.5
	Indiana	96.0	99.1	97.4
	Dubois	97.6	94.5	96.2
	Johnstown	97.2	95.8	96.6
	Butler	92.3	100.5	95.9
	New Castle	92.4	97.5	94.6
	Kittanning	92.8	102.4	97.0
	Oil City	92.4	94.7	93.4
	Erie	94.6	93.6	94.1
	Altoona	94.8	90.6	93.0
	Bradford	95.5	93.8	94.7
	State College	95.0	91.8	93.6
	Wellsboro	96.1	92.4	94.5
	Harrisburg	97.7	96.1	97.0
	Chambersburg	95.5	89.5	92.9
	York	96.3	95.2	95.8
	Lancaster	94.3	89.7	92.3

STATE/ZIP	CITY	MAT.	INST.	TOTAL
PENNSYLVANIA (CONTD)				
	Williamsport	93.0	79.6	87.1
	Sunbury	95.1	95.1	95.1
	Pottsville	94.2	96.8	95.4
	Lehigh Valley	95.6	113.5	103.5
	Allentown	97.9	109.2	102.9
	Hazleton	95.1	97.2	96.0
	Scranton	94.9	103.0	98.5
	Scranton	98.6	99.5	99.0
	Wilkes-Barre	94.8	98.2	96.3
	Montrose	94.5	97.0	95.6
	Doylstown	94.7	120.1	105.9
	Philadelphia	99.9	130.9	113.6
	Westchester	96.1	122.8	107.9
	Norristown	95.2	130.2	110.6
	Reading	97.6	100.0	98.6
PUERTO RICO				
009	San Juan	121.3	24.1	78.4
RHODE ISLAND				
028	Newport	99.2	111.1	104.5
029	Providence	100.2	111.1	105.0
SOUTH CAROLINA				
290-292	Columbia	97.8	49.3	76.4
293	Spartanburg	96.8	49.0	75.7
294	Charleston	98.4	57.4	80.3
295	Florence	96.6	49.3	75.8
296	Greenville	96.6	49.0	75.6
297	Rock Hill	96.0	47.2	74.5
298	Aiken	96.8	72.8	86.2
299	Beaufort	97.5	42.5	73.3
SOUTH DAKOTA				
570-571	Sioux Falls	100.7	57.1	81.5
572	Watertown	99.8	51.6	78.5
573	Mitchell	98.6	51.0	77.6
574	Aberdeen	101.6	52.2	79.8
575	Pierre	100.1	53.8	79.7
576	Mobridge	99.3	51.4	78.2
577	Rapid City	101.4	54.6	80.7
TENNESSEE				
370-372	Nashville	96.8	72.2	86.0
373-374	Chattanooga	99.0	66.2	84.6
375,380-381	Memphis	98.2	69.6	85.6
376	Johnson City	98.7	56.7	80.2
377-379	Knoxville	95.4	61.4	80.4
382	McKenzie	97.1	61.8	81.6
383	Jackson	99.2	63.8	83.6
384	Columbia	95.7	67.1	83.1
385	Cookeville	97.0	60.2	80.8
TEXAS				
750	McKinney	98.5	50.2	77.2
751	Waxahackie	98.5	57.3	80.3
752-753	Dallas	99.4	66.8	85.0
754	Greenville	98.6	43.3	74.2
755	Texarkana	98.0	51.0	77.2
756	Longview	98.6	40.4	72.9
757	Tyler	99.0	54.4	79.4
758	Palestine	95.2	56.6	78.2
759	Lufkin	95.8	58.3	79.3
760-761	Fort Worth	97.2	63.2	82.2
762	Denton	97.1	47.8	75.4
763	Wichita Falls	98.0	54.8	79.0
764	Eastland	96.5	49.7	75.9
765	Temple	95.1	49.4	75.0
766-767	Waco	97.4	56.4	79.4
768	Brownwood	97.7	49.0	76.2
769	San Angelo	97.3	49.6	76.3
770-772	Houston	99.1	69.8	86.2
773	Huntsville	97.5	55.9	79.2
774	Wharton	98.5	54.0	78.9
775	Galveston	96.5	68.2	84.0
776-777	Beaumont	97.2	62.0	81.7
778	Bryan	94.3	61.7	79.9
779	Victoria	98.6	44.0	74.5
780	Laredo	95.8	52.7	76.8
781-782	San Antonio	96.2	65.0	82.4
783-784	Corpus Christi	98.9	52.3	78.4
785	Mc Allen	98.6	46.6	75.7
786-787	Austin	96.1	58.8	79.6

Location Factors

STATE/ZIP	CITY	MAT.	INST.	TOTAL
TEXAS (CONTD)				
788	Del Rio	98.0	46.5	75.3
789	Giddings	95.1	56.2	77.9
790-791	Amarillo	98.1	61.0	81.7
792	Childress	97.3	57.2	79.6
793-794	Lubbock	99.6	56.8	80.7
795-796	Abilene	97.9	54.2	78.6
797	Midland	99.4	51.4	78.2
798-799,885	El Paso	96.8	51.2	76.7
UTAH				
840-841	Salt Lake City	101.6	68.4	86.9
842,844	Ogden	97.3	70.0	85.3
843	Logan	99.2	70.0	86.3
845	Price	99.5	65.9	84.7
846-847	Provo	99.7	68.3	85.8
VERMONT				
050	White River Jct.	98.0	54.4	78.8
051	Bellevue Falls	96.5	72.7	86.0
052	Bennington	96.8	67.8	84.0
053	Brattleboro	97.2	72.9	86.5
054	Burlington	100.6	65.4	85.1
056	Montpelier	97.4	65.4	83.3
057	Rutland	99.2	65.4	84.3
058	St. Johnsbury	97.9	55.2	79.1
059	Guildhall	96.6	55.0	78.3
VIRGINIA				
220-221	Fairfax	100.1	82.0	92.1
222	Arlington	101.6	79.9	92.0
223	Alexandria	100.6	86.0	94.2
224-225	Fredericksburg	98.8	71.8	86.9
226	Winchester	99.4	62.2	83.0
227	Culpeper	99.3	67.0	85.1
228	Harrisonburg	99.6	63.0	83.4
229	Charlottesville	100.0	62.8	83.6
230-232	Richmond	100.6	66.0	85.3
233-235	Norfolk	101.4	67.6	86.5
236	Newport News	100.4	67.3	85.8
237	Portsmouth	99.9	64.4	84.3
238	Petersburg	99.9	66.0	85.0
239	Farmville	98.9	52.3	78.4
240-241	Roanoke	101.2	59.8	82.9
242	Bristol	98.6	54.3	79.1
243	Pulaski	98.3	50.3	77.1
244	Staunton	99.2	58.2	81.1
245	Lynchburg	99.3	63.6	83.5
246	Grundy	98.6	49.7	77.0
WASHINGTON				
980-981,987	Seattle	102.5	106.3	104.2
982	Everett	102.2	95.6	99.3
983-984	Tacoma	102.2	97.9	100.3
985	Olympia	99.4	97.9	98.7
986	Vancouver	103.5	93.0	98.8
988	Wenatchee	101.8	83.6	93.8
989	Yakima	102.5	92.6	98.1
990-992	Spokane	102.5	82.7	93.7
993	Richland	102.1	86.8	95.4
994	Clarkston	100.4	81.3	92.0
WEST VIRGINIA				
247-248	Bluefield	97.4	82.6	90.9
249	Lewisburg	99.1	82.7	91.9
250-253	Charleston	99.2	89.5	94.9
254	Martinsburg	98.9	79.1	90.2
255-257	Huntington	100.6	91.4	96.6
258-259	Beckley	97.3	86.6	92.6
260	Wheeling	100.7	89.2	95.7
261	Parkersburg	99.6	88.4	94.7
262	Buckhannon	98.8	89.0	94.5
263-264	Clarksburg	99.4	89.1	94.9
265	Morgantown	99.5	88.2	94.5
266	Gassaway	98.7	89.8	94.8
267	Romney	98.7	85.1	92.7
268	Petersburg	98.5	84.9	92.5
WISCONSIN				
530,532	Milwaukee	100.9	108.3	104.2
531	Kenosha	100.8	101.0	100.9
534	Racine	100.1	101.0	100.5
535	Beloit	100.0	96.0	98.3
537	Madison	99.3	97.2	98.4

STATE/ZIP	CITY	MAT.	INST.	TOTAL
WISCONSIN (CONTD)				
538	Lancaster	97.6	91.5	94.9
539	Portage	96.1	94.5	95.4
540	New Richmond	97.3	94.4	96.0
541-543	Green Bay	101.8	91.6	97.3
544	Wausau	96.5	91.7	94.4
545	Rhineland	99.8	90.5	95.7
546	La Crosse	98.1	93.2	95.9
547	Eau Claire	99.7	94.3	97.3
548	Superior	97.1	96.9	97.0
549	Oshkosh	97.2	82.6	90.8
WYOMING				
820	Cheyenne	99.1	63.8	83.9
821	Yellowstone Nat'l Park	96.4	59.3	80.1
822	Wheatland	97.5	58.2	80.3
823	Rawlins	99.0	57.0	81.5
824	Worland	97.1	57.0	79.4
825	Riverton	98.1	57.0	80.0
826	Casper	98.9	57.7	85.7
827	Newcastle	96.9	57.0	79.3
828	Sheridan	99.7	60.6	82.4
829-831	Rock Springs	101.0	57.2	81.7
CANADIAN FACTORS (reflect Canadian currency)				
ALBERTA				
	Calgary	129.8	93.1	113.6
	Edmonton	130.0	93.1	113.7
	Fort McMurray	126.5	95.8	113.0
	Lethbridge	120.8	95.3	109.5
	Lloydminster	116.0	91.8	105.4
	Medicine Hat	116.1	91.1	105.1
	Red Deer	116.6	91.1	105.3
BRITISH COLUMBIA				
	Kamloops	116.9	94.4	107.0
	Prince George	118.1	93.7	107.3
	Vancouver	128.1	89.1	109.9
	Victoria	118.1	87.2	104.5
MANITOBA				
	Brandon	116.2	79.0	99.6
	Portage la Prairie	116.0	77.2	96.8
	Winnipeg	128.4	72.4	103.7
NEW BRUNSWICK				
	Bathurst	114.1	70.1	94.7
	Dalhousie	114.1	70.3	94.8
	Fredericton	117.0	75.6	96.5
	Moncton	114.3	71.7	95.5
	Newcastle	114.1	70.8	95.0
	St. John	116.6	75.3	98.4
NEWFOUNDLAND				
	Corner Brook	119.5	70.5	97.9
	St. Johns	120.3	75.7	100.6
NORTHWEST TERRITORIES				
	Yellowknife	123.5	88.9	108.3
NOVA SCOTIA				
	Bridgewater	115.6	77.8	98.9
	Dartmouth	117.2	77.8	98.8
	Halifax	119.0	80.3	101.9
	New Glasgow	115.3	77.8	98.6
	Sydney	112.8	77.8	97.4
	Truro	115.1	77.8	98.8
	Yarmouth	115.2	77.8	98.7
ONTARIO				
	Barrie	118.6	96.9	109.1
	Brantford	117.7	101.0	110.4
	Cornwall	117.7	97.2	108.7
	Hamilton	121.9	93.7	109.4
	Kingston	118.6	97.3	109.2
	Kitchener	113.7	90.4	103.4
	London	121.6	90.2	107.8
	North Bay	118.0	94.9	107.8
	Oshawa	117.1	98.2	108.7
	Ottawa	122.9	90.7	109.7
	Owen Sound	118.8	95.0	106.3
	Peterborough	117.7	97.0	108.8
	Sarnia	117.4	101.6	110.5
ONTARIO (CONTD)				
	Sault Ste Marie	112.6	94.5	104.6

Location Factors

SITE/ZIP	CITY	MAT.	INST.	TOTAL
	St. Catharines	111.7	91.3	102.8
	Sudbury	112.3	90.4	102.7
	Thunder Bay	113.1	90.2	103.0
	Timmins	117.9	94.9	107.8
	Toronto	123.0	98.8	112.3
	Windsor	112.2	90.0	102.4
PRINCE EDWARD ISLAND	Charlottetown	118.2	65.4	95.0
	Summerside	117.0	65.5	94.3
REBELLION VALLEY	Cap-de-la-Madeleine	114.8	91.3	104.4
	Charlesbourg	114.8	91.3	104.4
	Chicoutimi	113.7	91.6	104.0
	Gatineau	114.4	91.1	104.2
	Granby	114.7	91.0	104.3
	Hull	114.5	91.1	104.2
	Joliette	114.9	91.3	104.5
	Laval	114.0	91.1	103.9
	Montreal	121.9	91.9	108.7
	Quebec	119.8	92.3	107.7
	Rimouski	114.2	91.6	104.2
	Rouyn-Noranda	114.4	91.1	104.1
	Saint Hyacinthe	113.6	91.1	103.7
	Sherbrooke	114.8	91.1	104.4
	Sorel	114.9	91.3	104.5
	St Jerome	114.4	91.1	104.1
	Trois Rivières	115.1	91.3	104.6
SASKATCHEWAN	Moose Jaw	113.4	72.4	95.3
	Prince Albert	112.3	70.5	93.9
	Regina	116.7	86.2	103.2
	Saskatoon	113.2	86.2	101.3
SASKATCHEWAN	Whitehorse	116.5	71.3	96.6

General Requirements

R0111 Summary of Work

R011105-05 Tips for Accurate Estimating

1. Use pre-printed or columnar forms for orderly sequence of dimensions and locations and for recording telephone quotations.
2. Use only the front side of each paper or form except for certain pre-printed summary forms.
3. Be consistent in listing dimensions: For example, length x width x height. This helps in rechecking to ensure that, the total length of partitions is appropriate for the building area.
4. Use printed (rather than measured) dimensions where given.
5. Add up multiple printed dimensions for a single entry where possible.
6. Measure all other dimensions carefully.
7. Use each set of dimensions to calculate multiple related quantities.
8. Convert foot and inch measurements to decimal feet when listing. Memorize decimal equivalents to .01 parts of a foot (1/8" equals approximately .01').
9. Do not "round off" quantities until the final summary.
10. Mark drawings with different colors as items are taken off.
11. Keep similar items together, different items separate.
12. Identify location and drawing numbers to aid in future checking for completeness.
13. Measure or list everything on the drawings or mentioned in the specifications.
14. It may be necessary to list items not called for to make the job complete.
15. Be alert for: Notes on plans such as N.T.S. (not to scale); changes in scale throughout the drawings; reduced size drawings; discrepancies between the specifications and the drawings.
16. Develop a consistent pattern of performing an estimate.
For example:
 - a. Start the quantity takeoff at the lower floor and move to the next higher floor.
 - b. Proceed from the main section of the building to the wings.
 - c. Proceed from south to north or vice versa, clockwise or counterclockwise.
 - d. Take off floor plan quantities first, elevations next, then detail drawings.
17. List all gross dimensions that can be either used again for different quantities, or used as a rough check of other quantities for verification (exterior perimeter, gross floor area, individual floor areas, etc.)
18. Utilize design symmetry or repetition (repetitive floors, repetitive symmetrical design around a center line, similar room layouts, etc.)
Note: Extreme caution is needed here so as not to omit or duplicate an area.
19. Do not convert units until the final total is obtained. For instance, when estimating concrete work, keep all units to the nearest cubic foot, then summarize and convert to cubic yards.
20. When figuring alternatives, it is best to total all items involved in the basic system, then total all items involved in the alternates. Therefore, you work with positive numbers in all cases. When adds and deducts are used, it is often confusing whether to add or subtract a portion of an item; especially on a complicated or involved alternate.

R011110-10 Architectural Fees

Tabulated below are typical percentage fees by project size, for good professional architectural service. Fees may vary from those listed depending upon degree of design difficulty and economic conditions in any particular area.

Rates can be interpolated horizontally and vertically. Various portions of the same project requiring different rates should be adjusted proportionately. For alterations, add 50% to the fee for the first \$500,000 of project cost and add 25% to the fee for project cost over \$500,000.

Architectural fees tabulated below include Structural, Mechanical and Electrical Engineering Fees. They do not include the fees for special consultants such as kitchen planning, security, acoustical, interior design. Civil Engineering fees are included in the Architectural fee for projects requiring minimal design such as city sites. However, separate Civil Engineering fees must be added when utility connections require design. Drainage calculations are needed, stepped foundations are required, or provisions are required to protect adjacent wetlands.

Building Types	Total Project Size in Thousands of Dollars						
	100	250	500	1,000	5,000	10,000	50,000
Factories, garages, warehouses, repetitive housing	9.0%	8.0%	7.0%	6.2%	5.3%	4.9%	4.5%
Apartments, banks, schools, libraries, offices, municipal buildings	12.2	12.3	9.2	8.0	7.0	6.6	6.2
Churches, hospitals, homes, laboratories, museums, research	15.0	13.6	12.7	11.9	9.5	8.8	8.0
Memorials, monumental work, decorative furnishings	—	16.0	14.5	13.1	10.0	9.0	8.3

11-10-30 Engineering Fees

Structural Engineering Fees based on type of construction and total project size. These fees are included in Architectural Fees.

Type of Construction	Total Project Size (in thousands of dollars)			
	\$500	\$500-\$1,000	\$1,000-\$5,000	Over \$5000
Industrial buildings, & warehouses	Technical payroll times 2.0 to 2.5	1.60%	1.25%	1.00%
Hotels, apartments, offices, dormitories, schools, public buildings, food stores		2.00%	1.70%	1.20%
Businesses, banks, churches and schools		2.00%	1.75%	1.25%
Highways, prestressed concrete, earth retaining walls		2.00%	1.75%	1.50%
Airports, ramps, auditoriums, stadiums, convention halls, hangars & boiler houses		2.50%	2.00%	1.75%
Special buildings, major alterations, remodeling & future expansion	▼	Add to above 0.5%	Add to above 0.5%	Add to above 0.5%

For complex reinforced concrete or unusually complicated structures, add 20% to 50%.

Mechanical and Electrical Engineering Fees are based on the size of the subcontract. The fee structure for both are shown below. These fees are included in Architectural Fees.

Type of Construction	Subcontract Size							
	\$25,000	\$50,000	\$100,000	\$225,000	\$350,000	\$500,000	\$750,000	\$1,000,000
Simple structures	6.4%	5.7%	4.8%	4.5%	4.4%	4.3%	4.2%	4.1%
Intermediate structures	8.0	7.3	6.5	5.6	5.1	5.0	4.9	4.8
Complex structures	10.1	9.0	9.0	8.0	7.5	7.5	7.0	7.0

For alterations, add 15% to 25% to applicable fee.

11-57-20 Construction Time Requirements

Table shows average construction time in months for different types, sizes, and building projects. Design time runs 25% to 40% of construction

Building Type	Size S.F.	Project Value	Construction Duration
Industrial/Warehouse	100,000	\$8,000,000	14 Months
	500,000	\$32,000,000	19 Months
	1,000,000	\$75,000,000	21 Months
	50,000	\$7,000,000	15 Months
Offices/Retail	250,000	\$28,000,000	23 months
	500,000	\$58,000,000	34 months
	200,000	\$45,000,000	31 months
	500,000	\$110,000,000	52 months
Institutional/Hospitals/Laboratory	750,000	\$160,000,000	55 months
	1,000,000	\$210,000,000	60 months

General Requirements

R0129 Payment Procedures

R012909-80 Sales Tax by State

State sales tax on materials is tabulated below (5 states have no sales tax). Many states allow local jurisdictions, such as a county or city, to levy additional sales tax.

Some projects may be sales tax exempt, particularly those constructed with public funds.

State	Tax (%)	State	Tax (%)	State	Tax (%)	State	Tax (%)
Alabama	4	Illinois	6.25	Montana	0	Rhode Island	6
Alaska	0	Indiana	7	Nebraska	5.5	South Carolina	6
Arizona	6.6	Iowa	6	Nevada	6.85	South Dakota	4
Arkansas	6	Kansas	5.3	New Hampshire	0	Tennessee	7
California	9.25	Kentucky	6	New Jersey	7	Texas	6.25
Colorado	2.9	Louisiana	4	New Mexico	5.13	Utah	4.75
Connecticut	6	Maine	5	New York	4	Vermont	6
Delaware	0	Maryland	6	North Carolina	5.75	Virginia	4
District of Columbia	6	Massachusetts	6.25	North Dakota	5	Washington	6.5
Florida	6	Michigan	6	Ohio	5.5	West Virginia	6
Georgia	4	Minnesota	6.875	Oklahoma	4.5	Wisconsin	5
Hawaii	4	Mississippi	7	Oregon	0	Wyoming	4
Idaho	6	Missouri	4.225	Pennsylvania	6	Average	5.07

Sales Tax by Province (Canada)

GST - a value-added tax, which the government imposes on most goods and services provided in or imported into Canada. PST - a retail sales tax, which three of the provinces impose on the price of most goods and some

services. QST - a value-added tax, similar to the federal GST, which Quebec imposes. HST - Five provinces have combined their retail sales tax with the federal GST into one harmonized tax.

Province	PST (%)	QST (%)	GST (%)	HST (%)
Alberta	0	0	5	0
British Columbia	0	0	0	12
Manitoba	7	0	5	0
New Brunswick	0	0	0	13
Newfoundland	0	0	0	13
Northwest Territories	0	0	5	0
Nova Scotia	0	0	0	15
Ontario	0	0	0	13
Prince Edward Island	10	0	5	0
Quebec	0	8.5	5	0
Saskatchewan	5	0	5	0
Yukon	0	0	5	0

012909-85 Unemployment Taxes and Social Security Taxes

Unemployment Tax rates vary not only from state to state, but also by the experience rating of the contractor. The Federal Unemployment Tax is 2% of the first \$7,000 of wages. This is reduced by a credit of up to 5% for timely payment to the state. The minimum Federal Unemployment Tax is 0.8% after all credits.

Social Security (FICA) for 2012 is estimated at time of publication to be 7.65% of wages up to \$110,100.

012909-90 Overtime

To improve the completion date of a project or eliminate negative float on a schedule is to compress activity duration times. This can be done by increasing the crew size or working overtime with the proposed activity.

cost chart based on a five, six, or seven day week with an eight through twelve hour day. Payroll percentage increases for time and one half and double time are shown for the various working days.

To determine the costs of working overtime to compress activity duration consider the following examples. Below is an overtime efficiency and

Days per Week	Hours per Day	Production Efficiency					Payroll Cost Factors	
		1st Week	2nd Week	3rd Week	4th Week	Average 4 Weeks	@ 1-1/2 Times	@ 2 Times
5	8	100%	100%	100%	100%	100 %	100 %	100 %
	9	100	100	95	90	96.25	105.6	111.1
	10	100	95	90	85	91.25	110.0	120.0
	11	95	90	75	65	81.25	113.6	127.3
	12	90	85	70	60	76.25	116.7	133.3
6	8	100	100	95	90	96.25	108.3	116.7
	9	100	95	90	85	92.50	113.0	125.9
	10	95	90	85	80	87.50	116.7	133.3
	11	95	85	70	65	78.75	119.7	139.4
	12	90	80	65	60	73.75	122.2	144.4
7	8	100	95	85	75	88.75	114.3	128.6
	9	95	90	80	70	83.75	118.3	136.5
	10	90	85	75	65	78.75	121.4	142.9
	11	85	80	65	60	72.50	124.0	148.1
	12	85	75	60	55	68.75	126.2	152.4

013113-40 Builder's Risk Insurance

Builder's Risk Insurance is insurance on a building during construction. Premiums are paid by the owner or the contractor. Blasting, collapse and dependent insurance would raise total insurance costs above those listed. Separate policy for materials delivered to the job runs \$.75 to \$1.25 per \$100 value. Contractor equipment insurance runs \$.50 to \$1.50 per \$100 value. Insurance for miscellaneous tools to \$1,500 value runs from \$.30 to \$.50 per \$100 value.

Tabulated below are New England Builder's Risk insurance rates in dollars per \$100 value for \$1,000 deductible. For \$25,000 deductible, rates can be reduced 13% to 34%. On contracts over \$1,000,000, rates may be lower than those tabulated. Policies are written annually for the total completed value in place. For "all risk" insurance (excluding flood, earthquake and certain other perils) add \$.025 to total rates below.

Coverage	Frame Construction (Class 1)		Brick Construction (Class 4)		Fire Resistive (Class 6)	
	Range	Average	Range	Average	Range	Average
Fire Insurance	\$.350 to \$.850	\$.600	\$.158 to \$.189	\$.174	\$.052 to \$.080	\$.070
Extended Coverage	.115 to .200	.158	.080 to .105	.101	.081 to .105	.100
Windstorm	.012 to .016	.014	.008 to .011	.011	.008 to .011	.010
Total Annual Rate	\$.477 to \$1.066	\$.772	\$.246 to \$.305	\$.286	\$.141 to \$.196	\$.180

General Requirements

R0131 Project Management & Coordination

R013113-50 General Contractor's Overhead

There are two distinct types of overhead on a construction project: Project Overhead and Main Office Overhead. Project Overhead includes those costs at a construction site not directly associated with the installation of construction materials. Examples of Project Overhead costs include the following:

1. Superintendent
2. Construction office and storage trailers
3. Temporary sanitary facilities
4. Temporary utilities
5. Security fencing
6. Photographs
7. Clean up
8. Performance and payment bonds

The above Project Overhead items are also referred to as General Requirements and therefore are estimated in Division 1. Division 1 is the first division listed in the CSI MasterFormat but it is usually the last division estimated. The sum of the costs in Divisions 1 through 49 is referred to as the sum of the direct costs.

All construction projects also include indirect costs. The primary components of indirect costs are the contractor's Main Office Overhead and profit. The amount of the Main Office Overhead expense varies depending on the following:

1. Owner's compensation
2. Project managers and estimator's wages
3. Clerical support wages
4. Office rent and utilities
5. Corporate legal and accounting costs
6. Advertising
7. Automobile expenses
8. Association dues
9. Travel and entertainment expenses

These costs are usually calculated as a percentage of annual sales volume. This percentage can range from 35% for a small contractor doing less than \$500,000 to 5% for a large contractor with sales in excess of \$100 million.

0113-60 Workers' Compensation Insurance Rates by Trade

The table below tabulates the national averages for Workers' Compensation rates by trade and type of building. The average "Insurance Rate" is multiplied by the "% of Building Cost" for each trade. This produces

the "Workers' Compensation Cost" by % of total labor cost, to be added for each trade by building type to determine the weighted average Workers' Compensation rate for the building types analyzed.

Trade	Insurance Rate (% Labor Cost)		% of Building Cost			Workers' Compensation		
	Range	Average	Office Bldgs.	Schools & Apts.	Mfg.	Office Bldgs.	Schools & Apts.	Mfg.
Excavation, Grading, etc.	3.9 % to 18.1%	9.0%	4.8%	4.9%	4.5%	0.43%	0.44%	0.41%
Piers, Foundations	5.1 to 59.5	16.8	7.1	5.2	8.7	1.19	0.87	1.46
Concrete	4.9 to 29.7	12.7	5.0	14.8	3.7	0.64	1.88	0.47
Masonry	4.4 to 28.7	12.1	6.9	7.5	1.9	0.83	0.91	0.23
Structural Steel	5.1 to 124.1	36.9	10.7	3.9	17.6	3.95	1.44	6.49
Miscellaneous & Ornamental Metals	4.2 to 22.6	10.1	2.8	4.0	3.6	0.28	0.40	0.36
Carpentry & Millwork	5.1 to 37	15.0	3.7	4.0	0.5	0.56	0.60	0.08
Metal Composition Siding	4.9 to 43.3	14.9	2.3	0.3	4.3	0.34	0.04	0.64
Roofing	5.1 to 75.2	28.8	2.3	2.6	3.1	0.66	0.75	0.89
Doors & Hardware	2.8 to 37	10.5	0.9	1.4	0.4	0.09	0.15	0.04
Sanitary Glazing	4.9 to 33.1	12.6	3.5	4.0	1.0	0.44	0.50	0.13
Bath Plaster	2.5 to 30.5	10.8	3.3	6.9	0.8	0.36	0.75	0.09
Tile, Marble & Floors	2.3 to 18.9	8.0	2.6	3.0	0.5	0.21	0.24	0.04
Acoustical Ceilings	3.2 to 30.3	7.8	2.4	0.2	0.3	0.19	0.02	0.02
Painting	4.3 to 28.9	10.7	1.5	1.6	1.6	0.16	0.17	0.17
Interior Partitions	5.1 to 37	15.0	3.9	4.3	4.4	0.59	0.65	0.66
Miscellaneous Items	2.5 to 90.6	14.6	5.2	3.7	9.7	0.76	0.54	1.42
Elevators	1.8 to 12.8	5.9	2.1	1.1	2.2	0.12	0.06	0.13
Stairways	1.9 to 17.2	7.0	0.5	—	2.0	0.04	—	0.14
Pumping	2.7 to 17.1	6.9	4.9	7.2	5.2	0.34	0.50	0.36
Heat/Vent., Air Conditioning	3.8 to 19.3	8.5	13.5	11.0	12.9	1.15	0.94	1.10
Special	2.6 to 13.2	5.6	10.1	8.4	11.1	0.57	0.47	0.62
Total	1.8 % to 124.1%	—	100.0%	100.0%	100.0%	13.90%	12.32%	15.95%
Overall Weighted Average			14.06%					

Workers' Compensation Insurance Rates by States

The table below lists the weighted average Workers' Compensation base rate for each state with a factor comparing this with the national average of 14.06%.

State	Weighted Average	Factor	State	Weighted Average	Factor	State	Weighted Average	Factor
Alabama	19.6%	143	Kentucky	17.0%	124	North Dakota	10.8%	79
Alaska	16.3	119	Louisiana	15.6	114	Ohio	8.7	64
Arizona	9.0	66	Maine	14.0	102	Oklahoma	14.7	107
Arkansas	10.2	74	Maryland	15.6	114	Oregon	12.0	88
California	27.9	204	Massachusetts	12.4	91	Pennsylvania	16.3	119
Colorado	7.1	52	Michigan	20.6	150	Rhode Island	11.9	87
Connecticut	23.1	169	Minnesota	24.1	176	South Carolina	20.1	147
Delaware	9.3	68	Mississippi	13.1	96	South Dakota	16.0	117
District of Columbia	11.2	82	Missouri	17.4	127	Tennessee	13.2	96
Florida	10.8	79	Montana	14.2	104	Texas	10.6	77
Georgia	27.8	203	Nebraska	18.1	132	Utah	7.8	57
Hawaii	9.0	66	Nevada	10.4	76	Vermont	14.6	107
Idaho	10.8	79	New Hampshire	21.1	154	Virginia	8.7	64
Illinois	22.6	165	New Jersey	13.4	98	Washington	11.1	81
Indiana	5.5	40	New Mexico	17.8	130	West Virginia	12.6	92
Iowa	10.8	79	New York	5.9	43	Wisconsin	14.9	109
Kansas	8.0	58	North Carolina	17.6	128	Wyoming	5.7	42
Weighted Average for U.S. is				14.1% of payroll = 100%				

The following table are the base or manual costs per \$100 of payroll for Workers' Compensation in each state. Rates are usually applied to time wages only and not to premium time wages and bonuses. The weighted average skilled worker rate for 35 trades is 13.7%. For bidding purposes, apply the full value of Workers' Compensation directly

to total labor costs, or if labor is 38%, materials 42% and overhead and profit 20% of total cost, carry 38/80 x 13.7% = 6.5% of cost (before overhead and profit) into overhead. Rates vary not only from state to state but also with the experience rating of the contractor.

Rates are the most current available at the time of publication.

General Requirements

R0131 Project Management & Coordination

R013113-60 Workers' Compensation Insurance Rates by Trade and State (cont.)

State	Carpentry — 3 stories or less	Carpentry — interior cab. work	Carpentry — general	Concrete Work — NOC	Concrete Work — flat (flr., sdwk.)	Electrical Wiring — inside	Excavation — earth NOC	Excavation — rock	Glaziers	Insulation Work	Lathing	Masonry	Painting & Decorating	Pile Driving	Plastering	Plumbing	Roofing	Sheet Metal Work (HVAC)	Steel Erection — door & sash	Steel Erection — inter., ornam.	Steel Erection — structure	Steel Erection — NOC	Tie Work — (interior ceramic)	Waterproofing
AL	29.28	13.11	25.00	12.94	9.22	8.58	11.91	11.91	20.78	14.99	8.43	22.04	16.81	18.81	14.91	8.97	48.49	9.00	10.13	10.13	46.10	24.11	14.15	8.08
AK	12.44	9.33	13.86	11.33	10.80	6.86	9.06	9.06	32.79	17.54	8.30	16.08	11.68	33.22	13.00	7.53	25.29	7.47	7.41	7.41	25.75	41.66	5.15	5.48
AZ	11.78	5.44	15.76	6.99	4.24	4.37	4.81	4.81	6.09	10.18	3.64	7.06	7.21	8.53	5.15	4.56	18.34	6.49	9.20	9.20	21.81	10.32	2.89	3.58
AR	11.58	5.85	10.93	6.39	5.50	4.31	6.73	6.73	7.95	8.55	4.39	7.75	8.88	10.93	12.95	4.70	17.06	5.13	6.99	6.99	28.58	21.04	6.21	2.97
CA	36.98	36.98	36.98	19.36	19.34	13.20	18.05	18.05	27.35	17.74	16.02	27.71	21.08	23.37	30.46	17.05	64.15	19.29	22.60	22.60	41.64	23.39	2.30	21.08
CO	7.62	4.14	5.79	6.03	4.35	2.67	4.88	4.88	4.93	7.66	3.52	7.28	5.10	7.13	5.24	3.62	13.42	3.77	5.01	5.01	24.23	9.35	3.77	2.76
CT	19.80	17.42	27.18	22.71	13.56	7.85	14.62	14.62	19.83	24.28	12.69	27.26	21.51	23.20	18.28	10.85	48.23	13.52	15.52	15.52	64.75	22.28	13.05	6.77
DE	9.15	9.15	7.05	7.35	6.12	3.18	5.54	5.54	7.90	7.05	7.90	8.28	9.53	11.07	7.90	4.76	17.93	6.13	8.83	8.83	17.30	8.83	5.60	8.28
DC	8.25	8.16	7.71	12.10	7.65	4.34	9.06	9.06	13.00	6.41	6.70	10.21	5.60	15.02	8.73	7.96	16.80	7.20	15.77	15.77	19.23	10.98	9.00	4.18
FL	9.33	7.33	10.95	11.45	5.16	5.13	5.96	5.96	8.48	8.55	4.12	8.77	7.91	38.24	11.10	4.82	17.10	6.49	8.06	8.06	19.04	10.13	4.43	4.41
GA	43.26	19.77	27.19	20.25	15.13	10.28	16.31	16.31	18.41	19.10	12.62	28.72	28.86	23.32	21.44	12.2	75.23	17.15	19.64	19.64	73.28	34.09	12.76	10.18
HI	7.84	6.87	14.67	7.64	4.33	4.13	5.18	5.18	8.07	5.61	6.55	7.82	6.96	9.14	8.22	4.26	13.77	4.11	6.51	6.51	28.23	9.49	5.22	5.37
ID	12.77	6.43	10.55	11.76	5.76	3.47	7.06	7.06	9.63	7.67	6.29	7.80	8.43	9.30	13.57	4.27	22.62	7.21	8.55	8.55	32.97	8.02	6.84	4.80
IL	23.60	15.01	21.72	29.69	12.06	8.24	11.22	11.22	18.09	20.32	12.88	20.85	13.07	21.77	22.24	10.77	36.73	12.98	19.24	19.24	79.82	21.31	16.91	7.58
IN	8.38	4.15	6.38	4.95	3.41	2.68	4.15	4.15	5.28	6.02	3.24	4.43	4.34	3.34	2.28	2.65	10.05	4.13	4.21	4.21	11.63	5.11	2.89	2.59
IA	10.34	8.42	12.90	12.72	8.24	4.47	6.88	6.88	9.20	5.82	4.64	8.40	6.76	8.73	10.98	6.40	19.92	4.80	5.70	5.70	36.26	14.65	6.70	4.60
KS	12.27	5.30	8.09	6.46	5.62	3.67	4.59	4.59	8.35	8.35	3.41	6.73	6.60	7.80	5.04	4.43	13.94	4.61	4.75	4.75	18.81	13.14	5.31	3.99
KY	12.63	12.30	24.88	12.96	7.51	5.36	11.65	11.65	16.68	13.04	8.83	7.70	11.00	21.98	12.55	5.87	34.41	11.42	10.07	10.07	60.00	17.23	18.08	4.22
LA	18.20	12.54	20.92	11.92	9.35	6.46	12.02	12.02	14.16	10.50	6.61	13.71	15.78	15.66	10.45	6.08	32.48	12.91	12.19	12.19	44.77	9.67	7.08	6.58
ME	14.80	10.05	21.30	15.69	9.73	5.57	10.34	10.34	14.40	14.60	5.58	10.56	14.17	12.31	10.83	7.41	24.74	8.22	7.40	7.40	38.54	15.25	5.97	5.13
MD	17.56	13.32	14.28	19.37	5.51	7.07	7.60	7.60	12.50	14.18	5.58	10.00	7.28	21.24	10.47	7.02	30.67	7.73	10.49	10.49	59.74	22.48	6.69	5.43
MA	8.68	5.23	9.61	18.85	6.24	2.84	4.35	4.35	9.58	7.78	5.27	10.55	5.09	12.92	4.68	3.50	36.97	6.72	6.89	6.89	54.08	33.00	5.81	2.48
MI	21.01	11.98	21.01	17.15	10.48	6.35	14.00	14.00	15.12	13.11	13.59	18.32	13.30	59.47	10.34	7.71	42.64	12.58	12.03	12.03	59.47	16.23	11.70	6.95
MN	19.68	20.00	29.85	10.35	13.68	5.50	10.18	10.18	33.05	22.80	10.63	15.00	14.53	30.90	10.63	8.08	63.73	17.35	9.73	9.73	124.08	8.93	11.31	5.41
MS	17.32	9.93	13.14	9.84	5.57	4.62	9.84	9.84	11.41	9.91	4.97	12.50	9.60	17.78	10.10	8.54	32.19	6.45	13.01	13.01	30.00	8.32	7.92	4.45
MO	18.26	12.25	13.57	17.90	11.00	7.12	11.34	11.34	10.74	13.27	9.16	15.43	11.27	18.34	14.38	10.70	36.70	9.28	11.58	11.58	38.70	38.11	13.39	6.50
MT	13.20	10.71	20.41	12.22	10.37	5.23	12.92	12.92	10.67	19.74	7.41	9.78	8.66	15.08	10.75	7.27	39.34	8.38	9.64	9.64	24.14	9.36	8.36	7.78
NE	20.53	15.68	20.38	19.08	12.10	7.83	15.30	15.30	12.18	19.13	8.00	18.20	11.23	15.73	13.68	9.48	34.05	11.63	13.15	13.15	44.88	22.70	12.23	6.70
NV	10.76	7.25	11.35	10.52	7.16	4.80	8.48	8.48	6.75	8.06	3.45	6.62	6.07	8.88	6.41	6.22	17.81	8.84	7.73	7.73	25.26	15.85	13.93	5.16
NH	20.77	11.63	18.79	25.37	13.01	5.70	13.22	13.22	12.59	13.98	7.47	19.78	24.64	15.55	10.58	10.41	35.43	8.15	11.93	11.93	99.47	28.64	12.59	6.79
NJ	15.50	9.86	15.50	14.21	9.79	4.45	8.75	8.75	7.99	10.68	12.42	14.48	10.11	14.56	12.42	6.24	38.07	6.71	10.85	10.85	16.29	15.14	7.82	5.82
NM	19.58	8.17	18.99	13.33	10.11	8.08	8.28	8.28	18.17	11.75	6.68	15.36	11.43	18.20	14.39	8.14	37.47	9.92	12.79	12.79	54.49	40.63	7.66	6.66
NY	4.93	2.81	6.01	7.46	5.60	2.64	3.94	3.94	6.56	3.28	4.63	6.16	4.85	6.74	2.51	3.31	12.36	4.57	5.46	5.46	10.44	6.29	3.12	3.09
NC	15.50	11.55	18.63	17.12	8.14	9.96	13.11	13.11	11.87	12.57	9.34	11.05	11.85	16.82	13.63	8.92	33.88	11.87	11.97	11.97	70.40	20.61	8.12	5.41
ND	10.78	10.78	10.78	4.92	4.92	3.79	4.18	4.18	10.78	10.78	8.88	6.00	6.57	12.68	8.88	6.21	19.53	6.21	12.68	12.68	12.68	10.78	19.53	6.41
OH	6.82	4.77	6.03	4.98	4.96	3.17	4.83	4.83	9.26	9.83	30.29	7.62	7.64	7.67	7.20	3.94	15.01	4.87	6.17	6.17	12.91	6	6.11	4.90
OK	13.42	9.17	11.76	11.76	6.34	5.73	10.83	10.83	16.07	19.47	8.45	10.02	8.47	20.25	12.19	7.09	21.13	9.05	13.76	13.76	39.72	23.97	6.50	5.71
OR	19.79	8.26	13.53	10.34	8.96	5.18	9.03	9.03	10.65	10.89	6.79	11.80	10.85	12.18	9.08	5.38	26.12	6.49	6.82	6.82	20.28	15.61	6.68	5.72
PA	16.83	16.83	13.22	16.61	11.93	6.69	9.79	9.79	12.75	13.22	12.75	14.24	14.78	17.14	12.75	8.62	33.63	14.74	16.63	16.63	25.19	16.63	9.61	14.74
RI	9.69	10.13	12.42	13.18	10.51	4.12	8.56	8.56	10.26	13.56	4.93	8.95	9.48	20.95	8.02	5.77	19.37	6.38	6.06	6.06	28.84	20.64	4.60	4.61
SC	21.43	18.13	22.49	16.89	9.59	11.45	11.78	11.78	16.99	18.58	11.06	13.93	15.50	20.61	15.75	12.36	50.08	13.06	13.91	13.91	41.22	32.53	10.50	6.33
SD	18.86	13.19	18.65	20.78	8.58	4.84	9.13	9.13	14.61	13.45	6.47	11.88	10.04	15.98	10.23	9.60	31.05	9.72	11.92	11.92	45.18	23.68	6.07	6.02
TN	16.91	10.01	10.79	11.98	5.04	7.00	11.30	11.30	11.59	8.82	7.16	12.26	9.19	21.55	10.85	5.70	30.21	7.60	8.74	8.74	22.74	16.73	7.39	4.11
TX	9.68	7.76	9.68	8.61	6.25	5.65	7.33	7.33	7.82	10.32	4.91	8.32	8.04	12.94	8.04	5.47	17.96	13.94	7.16	7.16	29.32	11.95	5.11	5.07
UT	9.81	5.76	7.93	7.13	5.38	3.09	6.77	6.77	7.13	5.43	4.01	6.86	5.93	7.69	4.67	3.28	21.47	5.41	4.91	4.91	17.18	8.18	3.74	4.02
VT	13.01	12.79	15.72	11.55	8.77	4.46	10.51	10.51	13.83	14.05	6.01	13.93	9.03	12.33	8.89	8.77	26.46	7.73	10.42	10.42	45.01	23.47	7.90	7.15
VA	8.91	6.79	7.37	8.34	4.22	3.84	6.23	6.23	6.35	7.37	6.19	6.15	7.43	7.98	6.26	4.34	21.14	5.67	6.19	6.19	25.35	11.51	4.06	2.65
WA	8.93	8.93	8.93	8.93	8.93	3.27	5.79	5.79	13.83	8.00	8.93	11.74	14.05	20.72	10.68	4.12	19.61	4.58	8.62	8.62	8.62	16.71	7.86	1.96
WV	13.52	9.63	10.91	11.26	6.25	6.07	9.18	9.18	11.22	9.76	7.12	12.52	12.83	4.69	15.44	12.07	26.59	10.07	5.82	5.82	21.68	30.03	16.47	5.33
WI	13.04	10.81	16.27	12.16	8.90	5.66	7.72	7.72	12.52	12.83	4.69	15.44	12.07	26.59	10.07	5.82	31.84	8.36						

01313-60 Workers' Compensation (cont.) (Canada in Canadian dollars)

Province		Alberta	British Columbia	Manitoba	Ontario	New Brunswick	Newfoundland & Labrador	Northwest Territories	Nova Scotia	Prince Edward Island	Quebec	Saskatchewan	Yukon
Carpentry—3 stories or less	Rate	6.07	3.93	3.96	4.44	4.62	9.44	3.92	5.70	6.62	12.61	3.74	8.55
	Code	42143	721028	40102	723	238130	4226	441	4226	403	80110	B1226	202
Carpentry—interior cab. work	Rate	2.16	2.68	3.96	4.44	4.37	4.24	3.92	4.83	3.69	12.61	2.24	8.55
	Code	42133	721021	40102	723	238350	4279	441	4274	402	80110	B1127	202
CARPENTRY—general	Rate	6.07	3.93	3.93	4.44	4.62	4.24	3.92	5.70	6.62	12.61	3.74	8.55
	Code	42143	721028	40102	723	238130	4299	441	4226	403	80110	B1202	202
CONCRETE WORK—NOC	Rate	3.86	3.28	6.27	17.86	4.62	9.44	3.92	5.03	3.69	12.86	4.28	8.55
	Code	42104	721010	40110	748	238110	4224	441	4224	402	80100	B1314	203
CONCRETE WORK—flat (fr. newwork)	Rate	3.86	3.28	6.27	17.86	4.62	9.44	3.92	5.03	3.69	12.86	4.28	8.55
	Code	42104	721010	40110	748	238110	4224	441	4224	402	80100	B1314	203
ELECTRICAL Wiring—inside	Rate	1.72	1.71	1.74	3.60	2.09	2.57	2.67	2.68	3.69	4.55	2.24	4.96
	Code	42124	721019	40203	704	238210	4261	446	4261	402	80170	B1105	206
EXCAVATION—earth NOC	Rate	2.18	3.62	4.52	5.16	4.62	3.59	3.90	3.16	3.69	8.33	2.21	4.96
	Code	40604	721031	4	711	238190	4214	443	4214	402	80030	R1106	207
EXCAVATION—rock	Rate	2.18	3.62	4.19	5.16	4.62	3.59	3.90	3.16	3.69	8.33	2.21	4.96
	Code	40604	721031	40706	711	238190	4214	443	4214	402	80030	R1106	207
GLAZIERS	Rate	2.34	3.05	3.96	10.00	4.62	5.25	3.92	5.70	3.69	14.52	4.28	4.96
	Code	42121	715020	40109	751	238150	4233	441	4233	402	80150	B1304	212
INSULATION WORK	Rate	1.74	6.88	3.96	10.00	4.37	5.25	3.92	5.70	3.69	12.61	3.74	8.55
	Code	42184	721029	40102	751	238310	4234	441	4234	402	80110	B1207	202
PAINTING	Rate	3.78	7.08	3.96	4.44	4.37	4.24	3.92	4.83	3.69	12.61	4.28	8.55
	Code	42135	721042	40102	723	238390	4279	441	4271	402	80110	B1316	202
MASONRY	Rate	3.84	3.02	3.96	12.39	4.62	5.25	3.92	5.70	3.69	12.86	4.28	8.55
	Code	42102	721037	40102	741	238140	4231	441	4231	402	80100	B1318	202
PAINTING & DECORATING	Rate	2.90	3.12	3.44	7.33	4.37	4.24	3.92	4.83	3.69	12.61	3.74	8.55
	Code	42111	721041	40105	719	238320	4275	441	4275	402	80110	B1201	202
PILE DRIVING	Rate	3.77	3.92	4.19	6.86	4.62	3.59	3.90	5.03	6.62	8.33	4.28	8.55
	Code	42159	722004	40706	732	238190	4129	443	4221	403	80030	B1310	202
PLASTERING	Rate	3.78	7.08	4.48	7.33	4.37	4.24	3.92	4.83	3.69	12.61	3.74	8.55
	Code	42135	721042	40108	719	238390	4271	441	4271	402	80110	B1221	202
PLUMBING	Rate	1.72	2.26	2.93	4.06	2.09	2.68	2.67	3.14	2.21	6.44	2.24	4.96
	Code	42122	721043	40204	707	238220	4241	446	4241	401	80160	B1101	214
ROOFING	Rate	5.85	6.52	6.74	14.44	4.62	9.44	3.92	7.76	3.69	19.78	4.28	8.55
	Code	42118	721036	40403	728	238160	4236	441	4236	402	80130	B1320	202
SHEET METAL WORK (HVAC)	Rate	1.72	2.26	6.74	4.06	2.09	2.68	2.67	3.14	2.21	6.44	2.24	4.96
	Code	42117	721043	40402	707	238220	4244	446	4244	401	80160	B1107	208
STEEL ERECTION—door & sash	Rate	1.74	12.03	8.24	17.86	4.62	9.44	3.92	5.70	3.69	20.90	4.28	8.55
	Code	42106	722005	40502	748	238120	4227	441	4227	402	80080	B1322	202
STEEL ERECTION—inter., ornam.	Rate	1.74	12.03	8.24	17.86	4.62	9.44	3.92	5.70	3.69	20.90	4.28	8.55
	Code	42106	722005	40502	748	238120	4227	441	4227	402	80080	B1322	202
STEEL ERECTION—structure	Rate	1.74	12.03	8.24	17.86	4.62	9.44	3.92	5.70	3.69	20.90	4.28	8.55
	Code	42106	722005	40502	748	238120	4227	441	4227	402	80080	B1322	202
STEEL ERECTION—NOC	Rate	1.74	12.03	8.24	17.86	4.62	9.44	3.92	5.70	3.69	20.90	4.28	8.55
	Code	42106	722005	40502	748	238120	4227	441	4227	402	80080	B1322	202
TILE WORK—inter. (ceramic)	Rate	2.80	3.34	1.90	7.33	4.37	4.24	3.92	4.83	3.69	12.61	4.28	8.55
	Code	42113	721054	40103	719	238340	4276	441	4276	402	80110	B1301	202
WATERPROOFING	Rate	2.90	3.10	3.96	4.44	4.62	4.24	3.92	5.70	3.69	17.81	3.74	8.55
	Code	42139	721016	40102	723	238190	4299	441	4239	402	80130	B1217	202
WELDING	Rate	2.18	4.81	7.34	17.86	4.62	3.59	3.90	3.16	5.61	12.61	2.21	8.55
	Code	40604	721005	40106	748	238190	4211	443	4211	402	80110	R1125	202

General Requirements**R0131 Project Management & Coordination****R013113-80 Performance Bond**

This table shows the cost of a Performance Bond for a construction job scheduled to be completed in 12 months. Add 1% of the premium cost per month for jobs requiring more than 12 months to complete. The rates are "standard" rates offered to contractors that the bonding company considers financially sound and capable of doing the work. Preferred rates

are offered by some bonding companies based upon financial strength of contractor. Actual rates vary from contractor to contractor and from bonding company to bonding company. Contractors should prequalify through a bonding agency before submitting a bid on a contract that requires a bond.

Contract Amount	Building Construction Class B Projects	Highways & Bridges	
		Class A New Construction	Class A-1 Highway Resurfacing
First \$ 100,000 bid	\$25.00 per M	\$15.00 per M	\$9.40 per M
Next 400,000 bid	\$ 2,500 plus \$15.00 per M	\$ 1,500 plus \$10.00 per M	\$ 940 plus \$7.20 per M
Next 2,000,000 bid	8,500 plus 10.00 per M	5,500 plus 7.00 per M	3,820 plus 5.00 per M
Next 2,500,000 bid	28,500 plus 7.50 per M	19,500 plus 5.50 per M	15,820 plus 4.50 per M
Next 2,500,000 bid	47,250 plus 7.00 per M	33,250 plus 5.00 per M	28,320 plus 4.50 per M
Over 7,500,000 bid	64,750 plus 6.00 per M	45,750 plus 4.50 per M	39,570 plus 4.00 per M

General Requirements**R0151 Temporary Utilities****R015113-65 Temporary Power Equipment**

Cost data for the temporary equipment was developed utilizing the following information.

- | | |
|---|---|
| 1) Re-usable material-services, transformers, equipment and cords are based on new purchase and prorated to three projects. | 4) Labor units include an allowance for removal. |
| 2) PVC feeder includes trench and backfill. | 5) No utility company charges or fees are included. |
| 3) Connections include disconnects and fuses. | 6) Concrete pads or vaults are not included. |
| | 7) Utility company conduits not included. |

01123-10 Steel Tubular Scaffolding

new construction, tubular scaffolding is efficient up to 60' high or five stories. Above this it is usually better to use a hung scaffolding if construction involves swinging scaffolding operations may interfere with tenants. In this case, the tubular is more practical at all heights.

repairs or cleaning the front of an existing building the cost of tubular scaffolding per S.F. of building front increases as the height increases above the first tier. The first tier cost is relatively high due to leveling and bracing.

The most efficient crew for erecting and dismantling is three workers. They can set up and remove 18 frame sections per day up to 5 stories. On buildings 6 to 12 stories high, a crew of four is most efficient. Use two or three on top and two on the bottom for handing up or hoisting. They can

also set up and remove 18 frame sections per day. At 7' horizontal spacing, this will run about 800 S.F. per day of erecting and dismantling. Time for placing and removing planks must be added to the above. A crew of three can place and remove 72 planks per day up to 5 stories. For over 5 stories, a crew of four can place and remove 80 planks per day.

The table below shows the number of pieces required to erect tubular steel scaffolding for 1000 S.F. of building frontage. This area is made up of a scaffolding system that is 12 frames (11 bays) long by 2 frames high.

For jobs under twenty-five frames, add 50% to rental cost. Rental rates will be lower for jobs over three months duration. Large quantities for long periods can reduce rental rates by 20%.

Description of Component	Number of Pieces for	
	1000 S.F. of Building Front	Unit
Std. Standard Frame, 6'-4" High	24	Ea.
Level Jack & Plate	24	
Level Jack	44	
Level Bracket, 21"	12	
Level Post	12	
Level 7' section	22	
Level Section	2	
Level Starter Bar	1	
Level Inside Handrail	2	
Level Outside Handrail	2	
Level Frame Guardrail	2	

Scaffolding is often used as falsework over 15' high during construction of concrete beams and slabs. Two foot wide scaffolding is generally used for heavy beam construction. The span between frames depends on the load to be carried with a maximum span of 5'.

Heavy duty shoring frames with a capacity of 10,000#/leg can be spaced up to 10' C. depending upon form support design and loading.

Scaffolding used as horizontal shoring requires less than half the material required with conventional shoring.

On new construction, erection is done by carpenters.

Rolling towers supporting horizontal shores can reduce labor and speed the job. For maintenance work, catwalks with spans up to 70' can be supported by the rolling towers.

01123-20 Pump Staging

Pump staging is generally not available for rent. The table below shows the number of pieces required to erect pump staging for 2400 S.F. of building

frontage. This area is made up of a pump jack system that is 3 poles (2 bays) wide by 2 poles high.

Item	Number of Pieces for	
	2400 S.F. of Building Front	Unit
Standard pole section, 24' long	6	Ea.
Standard splice joint, 6' long	3	
Standard foldable brace	3	
Standard pump jack	3	
Standard support for workbench/back safety rail	3	
Standard scaffold plank/workbench, 14" wide x 24' long	4	
Standard safety net, 22' long	2	
Standard plank end safety rail	2	

The cost in place for this 2400 S.F. will depend on how many uses are made during the life of the equipment.

General Requirements

R0154 Construction Aids

R015433-10 Contractor Equipment

Rental Rates shown elsewhere in the book pertain to late model high quality machines in excellent working condition, rented from equipment dealers. Rental rates from contractors may be substantially lower than the rental rates from equipment dealers depending upon economic conditions; for older, less productive machines, reduce rates by a maximum of 15%. Any overtime must be added to the base rates. For shift work, rates are lower. Usual rule of thumb is 150% of one shift rate for two shifts; 200% for three shifts.

For periods of less than one week, operated equipment is usually more economical to rent than renting bare equipment and hiring an operator.

Costs to move equipment to a job site (mobilization) or from a job site (demobilization) are not included in rental rates, nor in any Equipment costs on any Unit Price line items or crew listings. These costs can be found elsewhere. If a piece of equipment is already at a job site, it is not appropriate to utilize mob/demob costs in an estimate again.

Rental rates vary throughout the country with larger cities generally having lower rates. Lease plans for new equipment are available for periods in excess of six months with a percentage of payments applying toward purchase.

Rental rates can also be treated as reimbursement costs for contractor-owned equipment. Owned equipment costs include depreciation, loan payments, interest, taxes, insurance, storage, and major repairs.

Crane Capacity	Hammer Type and Size		
	Air or Steam	Diesel	Vibratory
25 ton	to 8,750 ft.-lb.		70 H.P.
40 ton	15,000 ft.-lb.	to 32,000 ft.-lb.	170 H.P.
60 ton	25,000 ft.-lb.		300 H.P.
100 ton		112,000 ft.-lb.	

Cranes should be specified for the job by size, building and site characteristics, availability, performance characteristics, and duration of time required.

Backhoes & Shovels rent for about the same as equivalent size cranes but maintenance and operating expense is higher. Crane operators rate must be adjusted for high boom heights. Average adjustments: for 150' boom add 2% per hour; over 185', add 4% per hour; over 210', add 6% per hour; over 250', add 8% per hour and over 295', add 12% per hour.

Tower Cranes of the climbing or static type have jibs from 50' to 200' and capacities at maximum reach range from 4,000 to 14,000 pounds. Lifting capacities increase up to maximum load as the hook radius decreases.

Typical rental rates, based on purchase price are about 2% to 3% per month.

Erection and dismantling runs between 500 and 2000 labor hours. Climbing operation takes 10 labor hours per 20' climb. Crane dead time is about 5 hours per 40' climb. If crane is bolted to side of the building add cost of ties and extra mast sections. Climbing cranes have from 80' to 180' of mast while static cranes have 80' to 800' of mast.

Truck Cranes can be converted to tower cranes by using tower attachments. Mast heights over 400' have been used.

A single 100' high material **Hoist and Tower** can be erected and dismantled in about 400 labor hours; a double 100' high hoist and tower in about 600 labor hours. Erection times for additional heights are 3 and 4 labor hours

Monthly rental rates vary from 2% to 5% of the cost of the equipment depending on the anticipated life of the equipment and its wearing parts. Weekly rates are about 1/3 the monthly rates and daily rental rates about the weekly rate.

The hourly operating costs for each piece of equipment include costs to user such as fuel, oil, lubrication, normal expendables for the equipment, and a percentage of mechanic's wages chargeable to maintenance. The hourly operating costs listed do not include the operator's wages.

The daily cost for equipment used in the standard crews is figured by dividing the weekly rate by five, then adding eight times the hourly operating cost to give the total daily equipment cost, not including the operator. This figure is in the right hand column of the Equipment listings under Equipment Cost/Day.

Pile Driving rates shown for pile hammer and extractor do not include leads, crane, boiler or compressor. Vibratory pile driving requires an additional field specialist during set-up and pile driving operation for the electric model. The hydraulic model requires a field specialist for set-up only. Up to 125 reuses of sheet piling are possible using vibratory drivers. For normal conditions, crane capacity for hammer type and size are as follows.

per vertical foot respectively up to 150', and 4 to 5 labor hours per vertical foot over 150' high. A 40' high portable Buck hoist takes about 160 labor hours to erect and dismantle. Additional heights take 2 labor hours per vertical foot to 80' and 3 labor hours per vertical foot for the next 100'. Material hoists do not meet local code requirements for carrying personnel.

A 150' high **Personnel Hoist** requires about 500 to 800 labor hours to erect and dismantle. Budget erection time at 5 labor hours per vertical foot for all trades. Local code requirements or labor scarcity requiring overtime can add up to 50% to any of the above erection costs.

Earthmoving Equipment: The selection of earthmoving equipment depends upon the type and quantity of material, moisture content, haul distance, haul road, time available, and equipment available. Short haul and fill operations may require dozers only, while another operation may require excavators, a fleet of trucks, and spreading and compaction equipment. Stockpiled material and granular material are easily excavated with front end loaders. Scrapers are most economically used with hauls between 300' and 1-1/2 miles if adequate haul roads can be maintained. Shovels are often used for blasted rock and any material where a vertical of 8' or more can be excavated. Special conditions may dictate the use of draglines, clamshells, or backhoes. Spreading and compaction equipment must be matched to the soil characteristics, the compaction required and the rate the fill is being supplied.

R015433-15 Heavy Lifting

Hydraulic Climbing Jacks

The use of hydraulic heavy lift systems is an alternative to conventional type crane equipment. The lifting, lowering, pushing, or pulling mechanism is a hydraulic climbing jack moving on a square steel jackrod from 1-5/8" to 4" square, or a steel cable. The jackrod or cable can be vertical or horizontal, stationary or movable, depending on the individual application. When the jackrod is stationary, the climbing jack will climb the rod and push or pull the load along with itself. When the climbing jack is stationary, the jackrod is movable with the load attached to the end and the climbing jack will lift or lower the jackrod with the attached load. The heavy lift system is normally operated by a single control lever located at the hydraulic pump.

The system is flexible in that one or more climbing jacks can be applied wherever a load support point is required, and the rate of lift synchronized.

Economic benefits have been demonstrated on projects such as erection of ground assembled roofs and floors, complete bridge spans, girders, trusses, towers, chimney liners and steel vessels, storage tanks, and heavy machinery. Other uses are raising and lowering offshore work platforms, caissons, tunnel sections and pipelines.

R0241 19-10 Demolition Defined

Whole Building Demolition - Demolition of the whole building with no concern for any particular building element, component, or material being demolished. This type of demolition is accomplished with large construction equipment that break up the structure, load it into a haul truck, and haul it to a disposal site, but disposal or dump fees are not included. Demolition of below-grade foundation elements, such as footings, and walls, grade beams, slabs on grade, etc., is not included. Mechanical equipment containing flammable liquids or refrigerants, electric lighting elements, communication components, and other building elements may contain hazardous materials and must be removed, either selectively or carefully, as hazardous materials before the building can be demolished.

Partial Demolition - Demolition of below-grade foundation footings, and walls, grade beams, and slabs on grade. This type of demolition is accomplished by hand or pneumatic hand tools, and does not include saw cutting, handling, loading, hauling, or disposal of the debris.

Interior Demolition - Removal of building interior finishes and electrical/mechanical equipment down to the load-bearing and sub-floor elements of the rough building frame, with no concern for any particular building element, component, or material type being demolished. This type of demolition is accomplished by hand or pneumatic hand tools, and includes loading into a haul truck, but not hauling, disposal or dump fees, scaffolding, or shoring. Mechanical equipment containing flammable liquids or refrigerants, electric lighting elements, communication components, and other building elements may contain hazardous materials and must be removed, either selectively or carefully, as hazardous materials before the building is gutted.

Selective Demolition - Demolition of a selected building element, component, or finish, with some concern for surrounding or adjacent components, or finishes (see the first Subdivision (s) at the end of appropriate Divisions). This type of demolition is accomplished by hand or pneumatic hand tools, and does not include handling, loading,

storing, hauling, or disposal of the debris, scaffolding, or shoring. "Gutting" methods may be used in order to save time, but damage that is caused to surrounding or adjacent elements, components, or finishes may have to be repaired at a later time.

Careful Removal - Removal of a piece of service equipment, building element or component, or material type, with great concern for both the removed item and surrounding or adjacent elements, components or finishes. The purpose of careful removal may be to protect the removed item for later re-use, preserve a higher salvage value of the removed item, or replace an item while taking care to protect surrounding or adjacent elements, components, connections, or finishes from cosmetic and/or structural damage. An approximation of the time required to perform this type of removal is 1/3 to 1/2 the time it would take to install a new item of like kind (see Reference Number R220105-10). This type of removal is accomplished by hand or pneumatic hand tools, and does not include loading, hauling, or storing the removed item, scaffolding, shoring, or lifting equipment.

Cutout Demolition - Demolition of a small quantity of floor, wall, roof, or other assembly, with concern for the appearance and structural integrity of the surrounding materials. This type of demolition is accomplished by hand or pneumatic hand tools, and does not include saw cutting, handling, loading, hauling, or disposal of debris, scaffolding, or shoring.

Rubbish Handling - Work activities that involve handling, loading or hauling of debris. Generally, the cost of rubbish handling must be added to the cost of all types of demolition, with the exception of whole building demolition.

Minor Site Demolition - Demolition of site elements outside the footprint of a building. This type of demolition is accomplished by hand or pneumatic hand tools, or with larger pieces of construction equipment, and may include loading a removed item onto a truck (check the Crew for equipment used). It does not include saw cutting, hauling or disposal of debris, and, sometimes, handling or loading.

R0241 19-20 Dumpsters

Rental costs on construction sites are presented in two ways. The weekly rental cost includes the delivery of the dumpster, its pulling and emptying once per week, and its final removal. The assumption is made that the dumpster contractor could choose to empty a dumpster by simply pulling it in an empty unit and removing the full one. These costs also include the disposal of the materials in the dumpster.

The Alternate Pricing can be used when actual planned conditions are not approximated by the weekly numbers. For example, these lines can be used when a dumpster is needed for 4 weeks and will need to be emptied 2 or 3 times per week. Conversely the Alternate Pricing lines can be used when a dumpster will be rented for several weeks or months but needs to be emptied only a few times over this period.

Existing Conditions

R0265 Underground Storage Tank Removal

R0265 10-20 Underground Storage Tank Removal

Underground Storage Tank Removal can be divided into two categories: Non-Leaking and Leaking. Prior to removing an underground storage tank, a decision should be made, with the proper authorities present, to determine whether a tank has been leaking or the surrounding soil has been contaminated.

Safe to remove Liquid Underground Storage Tanks:

- Excavate to the top of the tank.
- Disconnect all piping.
- Open all tank vents and access ports.

4. Remove all liquids and/or sludge.
5. Purge the tank with an inert gas.
6. Provide access to the inside of the tank and clean out the interior using proper personal protective equipment (PPE).
7. Excavate soil surrounding the tank using proper PPE for on-site personnel.
8. Pull and properly dispose of the tank.
9. Clean up the site of all contaminated material.
10. Install new tanks or close the excavation.

Existing Conditions

R0282 Asbestos Remediation

R028213-20 Asbestos Removal Process

Asbestos removal is accomplished by a specialty contractor who understands the federal and state regulations regarding the handling and disposal of the material. The process of asbestos removal is divided into many individual steps. An accurate estimate can be calculated only after all the steps have been priced.

The steps are generally as follows:

1. Obtain an asbestos abatement plan from an industrial hygienist.
2. Monitor the air quality in and around the removal area and along the path of travel between the removal area and transport area. This establishes the background contamination.
3. Construct a two part decontamination chamber at entrance to removal area.
4. Install a HEPA filter to create a negative pressure in the removal area.
5. Install wall, floor and ceiling protection as required by the plan, usually 2 layers of fireproof 6 mil polyethylene.

6. Industrial hygienist visually inspects work area to verify compliance plan.
7. Provide temporary supports for conduit and piping affected by the removal process.
8. Proceed with asbestos removal and bagging process. Monitor air quality as described in Step #2. Discontinue operations when contaminate levels exceed applicable standards.
9. Document the legal disposal of materials in accordance with EPA standards.
10. Thoroughly clean removal area including all ledges, crevices and surfaces.
11. Post abatement inspection by industrial hygienist to verify plan compliance.
12. Provide a certificate from a licensed industrial hygienist attesting that contaminate levels are within acceptable standards before returning area to regular use.

Existing Conditions

R0283 Lead Remediation

R028319-60 Lead Paint Remediation Methods

Lead paint remediation can be accomplished by the following methods.

1. Abrasive blast
2. Chemical stripping
3. Power tool cleaning with vacuum collection system
4. Encapsulation
5. Remove and replace
6. Enclosure

Each of these methods has strengths and weakness depending on the specific circumstances of the project. The following is an overview of each method.

1. **Abrasive blasting** is usually accomplished with sand or recyclable metallic blast. Before work can begin, the area must be contained to ensure the blast material with lead does not escape to the atmosphere. The use of vacuum blast greatly reduces the containment requirements. Lead abatement equipment that may be associated with this work includes a negative air machine. In addition, it is necessary to have an industrial hygienist monitor the project on a continual basis. When the work is complete, the spent blast sand with lead must be disposed of as a hazardous material. If metallic shot was used, the lead is separated from the shot and disposed of as hazardous material. Worker protection includes disposable clothing and respiratory protection.
2. **Chemical stripping** requires strong chemicals be applied to the surface to remove the lead paint. Before the work can begin, the area under/adjacent to the work area must be covered to catch the chemical and removed lead. After the chemical is applied to the painted surface it is usually covered with paper. The chemical is left in place for the specified period, then the paper with lead paint is pulled or scraped off. The process may require several chemical applications. The paper with chemicals and lead paint adhered to it, plus the containment and loose scrapings collected by a HEPA (High Efficiency Particulate Air Filter) vac, must be disposed of as a hazardous material. The chemical stripping process usually requires a neutralizing agent and several wash downs after the paint is removed. Worker protection includes a neoprene or other compatible protective clothing and respiratory protection with face shield. An industrial hygienist is required intermittently during the process.

3. **Power tool cleaning** is accomplished using shrouded needle blasting guns. The shrouding with different end configurations is held up against the surface to be cleaned. The area is blasted with hardened needles and the shroud captures the lead with a HEPA vac and deposits it in a holding tank. An industrial hygienist monitors the project, protective clothing and a respirator is required until air samples prove otherwise. When the work is complete the lead must be disposed of as a hazardous material.
4. **Encapsulation** is a method that leaves the well bonded lead paint in place after the peeling paint has been removed. Before the work can begin, the area under/adjacent to the work must be covered to catch scrapings. The scraped surface is then washed with a detergent and rinsed. The prepared surface is covered with approximately 10 mils of paint. A reinforcing fabric can also be embedded in the paint cover. The scraped paint and containment must be disposed of as a hazardous material. Workers must wear protective clothing and respirators.
5. **Remove and replace** is an effective way to remove lead paint from windows, gypsum walls and concrete masonry surfaces. The painted materials are removed and new materials are installed. Workers must wear a respirator and tyvek suit. The demolished materials must be disposed of as hazardous waste if it fails the TCLP (Toxicity Characteristic Leachate Process) test.
6. **Enclosure** is the process that permanently seals lead painted material in place. This process has many applications such as covering lead painted drywall with new drywall, covering exterior construction with tyvek paper then residing, or covering lead painted structural members with aluminum or plastic. The seams on all enclosing materials must be securely sealed. An industrial hygienist monitors the project, protective clothing and a respirator is required until air samples prove otherwise.

All the processes require clearance monitoring and wipe testing as required by the hygienist.

R03113-10 Wall Form Materials

Aluminum Forms

Approximate weight is 3 lbs. per S.F.C.A. Standard widths are available from 2' to 5' with 36" most common. Standard lengths of 2', 4', 6' to 8' are available. Forms are lightweight and fewer ties are needed with the wider face. The form face is either smooth or textured.

Aluminum Framed Plywood Forms

Manufacturers claim over 75 reuses of plywood and over 300 reuses of steel. Many specials such as corners, fillers, pilasters, etc. are available. Rental is generally about 15% of purchase price for first month and 25% thereafter with 90% of rental applied to purchase for the second month and decreasing percentages thereafter. Aluminum framed forms are 25% to 30% more than steel framed.

For the first month, extra days may be prorated from the monthly charge. Charges do not include ties, accessories, cleaning, loss of hardware (except in and out). Approximate weight is 5 lbs. per S.F. for steel; 3 lbs. per S.F. for aluminum.

Forms may be rented with option to buy.

Plywood Forms, Job Fabricated

There are two types of plywood used for concrete forms.

Exterior plyform which is completely waterproof. This is face oiled to facilitate stripping. Ten reuses can be expected with this type with 25 reuses possible.

An overlaid type consists of a resin fiber fused to exterior plyform. No oiling is required except to facilitate cleaning. This is available in both high density (HDO) and medium density overlaid (MDO). Using HDO, 50 reuses can be expected with 200 possible.

R03113-30 Slipforms

The slipform method of forming may be used for forming circular silo and bin storage bin type structures over 30' high, and building core shear walls or eight stories high. The shear walls, usually enclose elevator shafts, airwells, mechanical spaces, and toilet rooms. Reuse of the form on other structures will reduce the height necessary and spread the cost of building the form. Slipform systems can be used to cast chimneys, towers, shafts, underground shafts or other structures capable of being raised.

Forms are usually 4' high and are raised semi-continuously by jacks mounted on rods which are embedded in the concrete. The jacks are powered by a hydraulic, pneumatic, or electric source and are available in 10 to 100 ton capacities. Interior work decks and exterior scaffolds must be provided for placing inserts, embedded items, reinforcing steel, and

Plyform is available in 5/8" and 3/4" thickness. High density overlaid is available in 3/8", 1/2", 5/8" and 3/4" thickness.

5/8" thick is sufficient for most building forms, while 3/4" is best on heavy construction.

Plywood Forms, Modular, Prefabricated

There are many plywood forming systems without frames. Most of these are manufactured from 1-1/8" (HDO) plywood and have some hardware attached. These are used principally for foundation walls 8' or less high. With care and maintenance, 100 reuses can be attained with decreasing quality of surface finish.

Steel Forms

Approximate weight is 6-1/2 lbs. per S.F.C.A. including accessories. Standard widths are available from 2" to 24", with 24" most common. Standard lengths are from 2' to 8', with 4' the most common. Forms are easily ganged into modular units.

Forms are usually leased for 15% of the purchase price per month prorated daily over 30 days.

Rental may be applied to sale price, and usually rental forms are bought. With careful handling and cleaning 200 to 400 reuses are possible.

Straight wall gang forms up to 12' x 20' or 8' x 30' can be fabricated. These crane handled forms usually lease for approx. 9% per month.

Individual job analysis is available from the manufacturer at no charge.

concrete. Scaffolds below the form for finishers may be required. The interior work decks are often used as roof slab forms on silos and bin work. Form raising rates will range from 6" to 20" per hour for silos; 6" to 30" per hour for buildings; and 6" to 48" per hour for shaft work.

Reinforcing bars and stressing strands are usually hoisted by crane or gin pole, and the concrete material can be hoisted by crane, winch-powered skip, or pumps. The slipform system is operated on a continuous 24-hour day when a monolithic structure is desired. For least cost, the system is operated only during normal working hours.

Placing concrete will range from 0.5 to 1.5 labor-hours per C.Y. Bucks, blockouts, keyways, weldplates, etc. are extra.

R031113-40 Forms for Reinforced Concrete**Design Economy**

Avoid many sizes in proportioning beams and columns.

From story to story avoid changing column dimensions. Gain strength by adding steel or using a richer mix. If a change in size of column is necessary, vary one dimension only to minimize form alterations. Keep beams and columns the same width.

From floor to floor in a multi-story building vary beam depth, not width, as that will leave slab panel form unchanged. It is cheaper to vary the strength of a beam from floor to floor by means of steel area than by 2" changes in either width or depth.

Cost Factors

Material includes the cost of lumber, cost of rent for metal pans or forms if used, nails, form ties, form oil, bolts and accessories.

Labor includes the cost of carpenters to make up, erect, remove and repair, plus common labor to clean and move. Having carpenters remove forms minimizes repairs.

Improper alignment and condition of forms will increase finishing cost. When forms are heavily oiled, concrete surfaces must be neutralized before finishing. Special curing compounds will cause spillages to spall off in first frost. Gang forming methods will reduce costs on large projects.

Materials Used

Boards are seldom used unless their architectural finish is required. Generally, steel, fiberglass and plywood are used for contact surfaces. Labor on plywood is 10% less than with boards. The plywood is backed up with

2 x 4's at 12" to 32" O.C. Walers are generally 2 - 2 x 4's. Column forms held together with steel yokes or bands. Shoring is with adjustable shores or scaffolding for high ceilings.

Reuse

Floor and column forms can be reused four or possibly five times without excessive repair. Remember to allow for 10% waste on each reuse.

When modular sized wall forms are made, up to twenty uses can be expected with exterior plyform.

When forms are reused, the cost to erect, strip, clean and move will not be affected. 10% replacement of lumber should be included and about one hour of carpenter time for repairs on each reuse per 100 S.F.

The reuse cost for certain accessory items normally rented on a monthly basis will be lower than the cost for the first use.

After fifth use, new material required plus time needed for repair prevent form cost from dropping further and it may go up. Much depends on stripping, the number of special bays, changes in beam or column sizes and other factors.

Costs for multiple use of formwork may be developed as follows:

$$\frac{(1st\ Use + Reuse)}{2} = \text{avg. cost/2 uses}$$

$$\frac{(1st\ Use + 2\ Reuse)}{3} = \text{avg. cost/3 uses}$$

$$\frac{(1st\ use + 3\ Reuse)}{4} = \text{avg. cost/4 uses}$$

03113-60 Formwork Labor-Hours

Item		Hours Required				Total Hours		Multiple Use	
		Unit	Fabricate	Erect & Strip	Clean & Move	1 Use	2 Use	3 Use	4 Use
Band Girder, interior beams, 12" wide	100 S.F.		6.4	8.3	1.3	16.0	13.3	12.4	12.0
from steel beams			5.8	7.7	1.3	14.8	12.4	11.6	11.2
on sides only, 36" high			5.8	7.2	1.3	14.3	11.9	11.1	10.7
on bottoms only, 24" wide			6.6	13.0	1.3	20.9	18.1	17.2	16.7
Box, for openings			9.9	10.0	1.1	21.0	16.6	15.1	14.3
Butt forms, to 8' high			6.0	6.5	1.2	13.7	11.2	10.4	10.0
Ceiling, steel, 3/4" rib lath				1.0		1.0			
rib lath or slab form		▼		0.9		0.9			
Clear strip or keyway	100 L.F.			1.5		1.5	1.5	1.5	1.5
Couls, fiber tube 8" diameter				20.6		20.6			
				21.3		21.3			
				22.9		22.9			
				23.7		23.7			
				24.6		24.6			
				25.6		25.6			
		▼							
Couls, round steel, 12" diameter				22.0		22.0	22.0	22.0	22.0
				25.6		25.6	25.6	25.6	25.6
				30.5		30.5	30.5	30.5	30.5
				37.7		37.7	37.7	37.7	37.7
		▼							
		▼							
Couls, plywood 8" x 8"	100 S.F.		7.0	11.0	1.2	19.2	16.2	15.2	14.7
1 x 12"			6.0	10.5	1.2	17.7	15.2	14.4	14.0
1 x 16"			5.9	10.0	1.2	17.1	14.7	13.8	13.4
2 x 24"			5.8	9.8	1.2	16.8	14.4	13.6	13.2
Couls, steel framed plywood 8" x 8"				10.0	1.0	11.0	11.0	11.0	11.0
1 x 12"				9.3	1.0	10.3	10.3	10.3	10.3
1 x 16"				8.5	1.0	9.5	9.5	9.5	9.5
2 x 24"				7.8	1.0	8.8	8.8	8.8	8.8
Drop head forms, plywood		9.0	12.5	1.5	23.0	19.0	17.7	17.0	
Drop forms			8.5	15.0	1.5	25.0	21.3	20.0	19.4
End, box				14.5	4.3	18.8	18.8	18.8	18.8
End forms, 6" to 12" high, on grade			5.0	8.5	1.2	14.7	12.7	12.1	11.7
Elevated slabs		▼	6.0	10.8	1.2	18.0	15.5	14.7	14.3
End forms to 6" high, on grade		100 L.F.	2.0	3.5	0.6	6.1	5.6	5.4	5.3
to 12" high		100 S.F.	2.5	5.0	1.0	8.5	7.8	7.5	7.4
Equipment foundations			10.0	18.0	2.0	30.0	25.5	24.0	23.3
Flat slabs, including drops			3.5	6.0	1.2	10.7	9.5	9.0	8.8
from steel			3.0	5.5	1.2	9.7	8.7	8.4	8.2
Flat deck for domes			3.0	5.8	1.2	10.0	9.0	8.7	8.5
on deck for pans			2.2	5.3	1.0	8.5	7.9	7.7	7.6
Forms, continuous, 12" high			3.5	3.5	1.5	8.5	7.3	6.8	6.6
Flat, 12" high			4.7	4.2	1.6	10.5	8.7	8.0	7.7
Flat caps, square or rectangular			4.5	5.0	1.5	11.0	9.3	8.7	8.4
Grid beams, 24" deep			2.5	5.3	1.2	9.0	8.3	8.0	7.9
Lintel or Sill forms			8.0	17.0	2.0	27.0	23.5	22.3	21.8
Spigot beams, 12" wide			9.0	11.2	1.3	21.5	17.5	16.2	15.5
Steel				25.0	4.0	29.0	29.0	29.0	29.0
Strip forms in floor			4.5	14.0	1.5	20.0	18.3	17.7	17.4
Wall, Plywood, at grade, to 8' high			5.0	6.5	1.5	13.0	11.0	9.7	9.5
to 16'			7.5	8.0	1.5	17.0	13.8	12.7	12.1
to 20'			9.0	10.0	1.5	20.5	16.5	15.2	14.5
Foundation walls, to 8' high			4.5	6.5	1.0	12.0	10.3	9.7	9.4
to 16' high			5.5	7.5	1.0	14.0	11.8	11.0	10.6
Retaining wall to 12' high, battered			6.0	8.5	1.5	16.0	13.5	12.7	12.3
Retaining walls to 12' high, smooth			8.0	9.5	2.0	19.5	16.0	14.8	14.3
Stanchions			7.0	8.0	1.5	16.5	13.5	12.5	12.0
Prefabricated modular, to 8' high		—		4.3	1.0	5.3	5.3	5.3	5.3
to 8' high		—		6.8	1.2	8.0	8.0	8.0	8.0
to 16' high		—		9.1	1.5	10.6	10.3	10.2	10.2
Steel framed plywood to 8' high		—		6.8	1.2	8.0	7.5	7.3	7.2
to 16' high		▼	—		9.3	1.2	10.5	9.5	9.2

Concrete

R0321 Reinforcing Steel

R032110-10 Reinforcing Steel Weights and Measures

Bar Designation No.**	Nominal Weight Lb./Ft.	U.S. Customary Units			SI Units			
		Nominal Dimensions*			Nominal Dimensions*			
		Diameter in.	Cross Sectional Area, in. ²	Perimeter in.	Nominal Weight kg/m	Diameter mm	Cross Sectional Area, cm ²	Perimeter mm
3	.376	.375	.11	1.178	.560	9.52	.71	29.9
4	.668	.500	.20	1.571	.994	12.70	1.29	39.9
5	1.043	.625	.31	1.963	1.552	15.88	2.00	49.9
6	1.502	.750	.44	2.356	2.235	19.05	2.84	59.8
7	2.044	.875	.60	2.749	3.042	22.22	3.87	69.8
8	2.670	1.000	.79	3.142	3.973	25.40	5.10	79.8
9	3.400	1.128	1.00	3.544	5.059	28.65	6.45	90.0
10	4.303	1.270	1.27	3.990	6.403	32.26	8.19	101.4
11	5.313	1.410	1.56	4.430	7.906	35.81	10.06	112.5
14	7.650	1.693	2.25	5.320	11.384	43.00	14.52	135.1
18	13.600	2.257	4.00	7.090	20.238	57.33	25.81	180.1

* The nominal dimensions of a deformed bar are equivalent to those of a plain round bar having the same weight per foot as the deformed bar.

** Bar numbers are based on the number of eighths of an inch included in the nominal diameter of the bars.

R032110-20 Metric Rebar Specification - ASTM A615-81

Grade 300 (300 MPa* = 43,560 psi; +8.7% vs. Grade 40)				
Grade 400 (400 MPa* = 58,000 psi; -3.4% vs. Grade 60)				
Bar No.	Diameter mm	Area mm ²	Equivalent in. ²	Comparison with U.S. Customary Bars
10M	11.3	100	.16	Between #3 & #4
15M	16.0	200	.31	#5 (.31 in. ²)
20M	19.5	300	.47	#6 (.44 in. ²)
25M	25.2	500	.78	#8 (.79 in. ²)
30M	29.9	700	1.09	#9 (1.00 in. ²)
35M	35.7	1000	1.55	#11 (1.56 in. ²)
45M	43.7	1500	2.33	#14 (2.25 in. ²)
55M	56.4	2500	3.88	#18 (4.00 in. ²)

* MPa = megapascals

10-40 Weight of Steel Reinforcing Per Square Foot of Wall (PSF)

Weights: The table below suggests the weights per square foot of reinforcing steel in walls. Weights are approximate and will be the same

for all grades of steel bars. For bars in two directions, add weights for each size and spacing.

C/C Spacing inches	Bar Size								
	#3 Wt. (PSF)	#4 Wt. (PSF)	#5 Wt. (PSF)	#6 Wt. (PSF)	#7 Wt. (PSF)	#8 Wt. (PSF)	#9 Wt. (PSF)	#10 Wt. (PSF)	#11 Wt. (PSF)
2"	2.26	4.01	6.26	9.01	12.27				
3"	1.50	2.67	4.17	6.01	8.18	10.68	13.60	17.21	21.25
4"	1.13	2.01	3.13	4.51	6.13	8.10	10.20	12.91	15.94
5"	.90	1.60	2.50	3.60	4.91	6.41	8.16	10.33	12.75
6"	.752	1.34	2.09	3.00	4.09	5.34	6.80	8.61	10.63
8"	.564	1.00	1.57	2.25	3.07	4.01	5.10	6.46	7.97
10"	.451	.802	1.25	1.80	2.45	3.20	4.08	5.16	6.38
12"	.376	.668	1.04	1.50	2.04	2.67	3.40	4.30	5.31
14"	.251	.445	.695	1.00	1.32	1.78	2.27	2.86	3.54
16"	.188	.334	.522	.751	1.02	1.34	1.70	2.15	2.66
18"	.150	.267	.417	.600	.817	1.07	1.36	1.72	2.13
20"	.125	.223	.348	.501	.681	.890	1.13	1.43	1.77
22"	.107	.191	.298	.429	.584	.753	.97	1.17	1.52
24"	.094	.167	.261	.376	.511	.668	.85	1.08	1.33

10-50 Minimum Wall Reinforcement Weight (PSF)

This table lists the approximate minimum wall reinforcement weights according to the specification of .12% of gross area for vertical bars and .20% of gross area for horizontal bars.

Location	Wall Thickness	Bar Size	Horizontal Steel Spacing C/C	Sq. In. Req'd per S.F.	Total Wt. per S.F.	Bar Size	Vertical Steel Spacing C/C	Sq. In. Req'd per S.F.	Total Wt. per S.F.	Horizontal & Vertical Steel Total Weight per S.F.
Foundation	10"	#4	18"	.24	.89#	#3	18"	.14	.50#	1.39#
	12"	#4	16"	.29	1.00	#3	16"	.17	.60	1.60
	14"	#4	14"	.34	1.14	#3	13"	.20	.69	1.84
	16"	#4	12"	.38	1.34	#3	11"	.23	.82	2.16
	18"	#5	17"	.43	1.47	#4	18"	.26	.89	2.36
Interior	6"	#3	9"	.15	.50	#3	18"	.09	.25	.75
	8"	#4	12"	.19	.67	#3	11"	.12	.41	1.08
	10"	#5	15"	.24	.83	#4	16"	.14	.50	1.34

10-70 Bend, Place and Tie Reinforcing

Production time by rodmen for footings and slabs runs from nine hrs. per ton for heavy bars to fifteen hrs. per ton for light bars. For beams, columns and walls, production runs from eight hrs. per ton for heavy bars to ten hrs. per ton for light bars. Overall average for typical reinforced concrete buildings is about fourteen hrs. per ton. These production figures include time for placing of accessories and usual inserts, but not their cost (allow 15% of the cost of delivered bent rods). Equipment

handling is necessary for the larger-sized bars so that installation costs for the very heavy bars will not decrease proportionately.

Installation costs for splicing reinforcing bars include allowance for equipment to hold the bars in place while splicing as well as necessary scaffolding for iron workers.

10-80 Shop-Fabricated Reinforcing Steel

Material prices for reinforcing, shown in the unit cost sections of the book, are for 50 tons or more of shop-fabricated reinforcing steel and include:

- Material price of reinforcing steel
- Material grade/size/length extras
- Material delivery to the fabrication shop
- Shop storage and handling
- Shop drafting/detailing

- 6. Shop shearing and bending
- 7. Shop listing
- 8. Shop delivery to the job site

Both material and installation costs can be considerably higher for small jobs consisting primarily of smaller bars, while material costs may be slightly lower for larger jobs.

Concrete**R0322 Welded Wire Fabric Reinforcing****R032205-30 Common Stock Styles of Welded Wire Fabric**

This table provides some of the basic specifications, sizes, and weights of welded wire fabric used for reinforcing concrete.

New Designation		Old Designation		Steel Area per Foot				Approximate Weight per 100 S.F.	
Spacing — Cross Sectional Area (in.) — (Sq. in. 100)		Spacing — Wire Gauge (in.) — (AS & W)		Longitudinal		Transverse		lbs	kg
				in.	cm	in.	cm		
Rolls	6 x 6 — W1.4 x W1.4	6 x 6 — 10 x 10	1	.028	.071	.028	.071	21	9.53
	6 x 6 — W2.0 x W2.0	6 x 6 — 8 x 8		.040	.102	.040	.102	29	13.15
	6 x 6 — W2.9 x W2.9	6 x 6 — 6 x 6		.058	.147	.058	.147	42	19.05
	6 x 6 — W4.0 x W4.0	6 x 6 — 4 x 4		.080	.203	.080	.203	58	26.31
	4 x 4 — W1.4 x W1.4	4 x 4 — 10 x 10	1	.042	.107	.042	.107	31	14.06
	4 x 4 — W2.0 x W2.0	4 x 4 — 8 x 8		.060	.152	.060	.152	43	19.50
	4 x 4 — W2.9 x W2.9	4 x 4 — 6 x 6		.087	.227	.087	.227	62	28.12
	4 x 4 — W4.0 x W4.0	4 x 4 — 4 x 4		.120	.305	.120	.305	85	38.56
Sheets	6 x 6 — W2.9 x W2.9	6 x 6 — 6 x 6	2	.058	.147	.058	.147	42	19.05
	6 x 6 — W4.0 x W4.0	6 x 6 — 4 x 4		.080	.203	.080	.203	58	26.31
	6 x 6 — W5.5 x W5.5	6 x 6 — 2 x 2		.110	.279	.110	.279	80	36.29
	4 x 4 — W1.4 x W1.4	4 x 4 — 4 x 4		.120	.305	.120	.305	85	38.56

NOTES: 1. Exact W—number size for 8 gauge is W2.1

2. Exact W—number size for 2 gauge is W5.4

Concrete**R0330 Cast-In-Place Concrete****R033053-50 Industrial Chimneys**

Foundation requirements in C.Y. of concrete for various sized chimneys.

Size Chimney	2 Ton Soil	3 Ton Soil	Size Chimney	2 Ton Soil	3 Ton Soil	Size Chimney	2 Ton Soil	3 Ton Soil
75' x 3'-0"	13 C.Y.	11 C.Y.	160' x 6'-6"	86 C.Y.	76 C.Y.	300' x 10'-0"	325 C.Y.	245 C.Y.
85' x 5'-6"	19	16	175' x 7'-0"	108	95	350' x 12'-0"	422	320
100' x 5'-0"	24	20	200' x 6'-0"	125	105	400' x 14'-0"	520	400
125' x 5'-6"	43	36	250' x 8'-0"	230	175	500' x 18'-0"	725	575

03305-10 Proportionate Quantities

The tables below show both quantities per S.F. of floor areas as well as form and reinforcing quantities per C.Y. Unusual structural requirements would require the ratios below. High strength reinforcing would reduce the steel

weights. Figures are for 3000 psi concrete and 60,000 psi reinforcing unless specified otherwise.

Type of Construction	Live Load	Span	Per S.F. of Floor Area				Per C.Y. of Concrete		
			Concrete	Forms	Reinf.	Pans	Forms	Reinf.	Pans
Flat Plate	50 psf	15 Ft.	.46 C.F.	1.06 S.F.	1.71lb.		62 S.F.	101 lb.	
		20	.63	1.02	2.40		44	104	
		25	.79	1.02	3.03		35	104	
	100	15	.46	1.04	2.14		61	126	
		20	.71	1.02	2.72		39	104	
		25	.83	1.01	3.47		33	113	
Flat Plate (waffle construction) 20" domes	50	20	.43	1.00	2.10	.84 S.F.	63	135	53 S.F.
		25	.52	1.00	2.90	.89	52	150	46
		30	.64	1.00	3.70	.87	42	155	37
	100	20	.51	1.00	2.30	.84	53	125	45
		25	.64	1.00	3.20	.83	42	135	35
		30	.76	1.00	4.40	.81	36	160	29
Waffle Construction 30" domes	50	25	.69	1.06	1.83	.68	42	72	40
		30	.74	1.06	2.39	.69	39	87	39
		35	.86	1.05	2.71	.69	33	85	39
		40	.78	1.00	4.80	.68	35	165	40
Flat Slab (two way with drop panels)	50	20	.62	1.03	2.34		45	102	
		25	.77	1.03	2.99		36	105	
		30	.95	1.03	4.09		29	116	
	100	20	.64	1.03	2.83		43	119	
		25	.79	1.03	3.88		35	133	
		30	.96	1.03	4.66		29	131	
	200	20	.73	1.03	3.03		38	112	
		25	.86	1.03	4.23		32	133	
		30	1.06	1.03	5.30		26	135	
One Way Joists 20" Pans	50	15	.36	1.04	1.40	.93	78	105	70
		20	.42	1.05	1.80	.94	67	120	60
		25	.47	1.05	2.60	.94	60	150	54
	100	15	.38	1.07	1.90	.93	77	140	66
		20	.44	1.08	2.40	.94	67	150	58
		25	.52	1.07	3.50	.94	55	185	49
One Way Joists 8" x 16" filler blocks	50	15	.34	1.06	1.80	.81 Ea.	84	145	64 Ea.
		20	.40	1.08	2.20	.82	73	145	55
		25	.46	1.07	3.20	.83	63	190	49
	100	15	.39	1.07	1.90	.81	74	130	56
		20	.46	1.09	2.80	.82	64	160	48
		25	.53	1.10	3.60	.83	56	190	42
One Way Beam & Slab	50	15	.42	1.30	1.73		84	111	
		20	.51	1.28	2.61		68	138	
		25	.64	1.25	2.78		53	117	
	100	15	.42	1.30	1.90		84	122	
		20	.54	1.35	2.69		68	154	
		25	.69	1.37	3.93		54	145	
	200	15	.44	1.31	2.24		80	137	
		20	.58	1.40	3.30		65	163	
		25	.69	1.42	4.89		53	183	
Two Way Beam & Slab	100	15	.47	1.20	2.26		69	130	
		20	.63	1.29	3.06		55	131	
		25	.83	1.33	3.79		43	123	
	200	15	.49	1.25	2.70		41	149	
		20	.66	1.32	4.04		54	165	
		25	.88	1.32	6.08		41	187	

Concrete

R0331 Structural Concrete

R033105-10 Proportionate Quantities (cont.)

4000 psi Concrete and 60,000 psi Reinforcing—Form and Reinforcing Quantities per C.Y.

4000 psi Concrete and 60,000 psi Reinforcing—Form and Reinforcing Quantities per C.Y.						
Item	Size		Forms	Reinforcing	Minimum	Maximum
Columns (square tied)	10" x 10"		130 S.F.C.A.	#5 to #11	220 lbs.	875 lbs.
	12" x 12"		108	#6 to #14	200	955
	14" x 14"		92	#7 to #14	190	900
	16" x 16"		81	#6 to #14	187	1082
	18" x 18"		72	#6 to #14	170	906
	20" x 20"		65	#7 to #18	150	1080
	22" x 22"		59	#8 to #18	153	902
	24" x 24"		54	#8 to #18	164	884
	26" x 26"		50	#9 to #18	169	994
	28" x 28"		46	#9 to #18	147	864
	30" x 30"		43	#10 to #18	146	983
	32" x 32"		40	#10 to #18	175	866
	34" x 34"		38	#10 to #18	157	772
	36" x 36"		36	#10 to #18	175	852
	38" x 38"		34	#10 to #18	158	765
	40" x 40"		32 ▼	#10 to #18	143	692
Item	Size	Form	Spiral	Reinforcing	Minimum	Maximum
Columns (spirally reinforced)	12" diameter	34.5 L.F.	190 lbs.	#4 to #11	165 lbs.	1505 lbs.
		34.5	190	#14 & #18	—	1100
	14"	25	170	#4 to #11	150	970
		25	170	#14 & #18	800	1000
	16"	19	160	#4 to #11	160	950
		19	160	#14 & #18	605	1080
	18"	15	150	#4 to #11	160	915
		15	150	#14 & #18	480	1075
	20"	12	130	#4 to #11	155	865
		12	130	#14 & #18	385	1020
	22"	10	125	#4 to #11	165	775
		10	125	#14 & #18	320	995
	24"	9	120	#4 to #11	195	800
		9	120	#14 & #18	290	1150
	26"	7.3	100	#4 to #11	200	729
		7.3	100	#14 & #18	235	1035
	28"	6.3	95	#4 to #11	175	700
		6.3	95	#14 & #18	200	1075
	30"	5.5	90	#4 to #11	180	670
		5.5	90	#14 & #18	175	1015
	32"	4.8	85	#4 to #11	185	615
		4.8	85	#14 & #18	155	955
	34"	4.3	80	#4 to #11	180	600
		4.3	80	#14 & #18	170	855
	36"	3.8	75	#4 to #11	165	570
		3.8	75	#14 & #18	155	865
	40"	3.0	70	#4 to #11	165	500
		3.0	70	#14 & #18	145	765

03305-10 Proportionate Quantities (cont.)

3000 psi Concrete and 60,000 psi Reinforcing—Form and Reinforcing Quantities per C.Y.

Item	Type	Loading	Height	C.Y./L.F.	Forms/C.Y.	Reinf./C.Y.
Retaining Walls	Cantilever	Level Backfill	4 Ft.	0.2 C.Y.	49 S.F.	35 lbs.
			8	0.5	42	45
			12	0.8	35	70
			16	1.1	32	85
			20	1.6	28	105
		Highway Surcharge	4	0.3	41	35
			8	0.5	36	55
			12	0.8	33	90
			16	1.2	30	120
			20	1.7	27	155
		Railroad Surcharge	4	0.4	28	45
			8	0.8	25	65
			12	1.3	22	90
			16	1.9	20	100
			20	2.6	18	120
	Gravity, with Vertical Face	Level Backfill	4	0.4	37	None
			7	0.6	27	
			10	1.2	20	
		Sloping Backfill	4	0.3	31	
			7	0.8	21	
			10	1.6	15	

Item	Span	Live Load in Kips per Linear Foot							
		Under 1 Kip		2 to 3 Kips		4 to 5 Kips		6 to 7 Kips	
		Forms	Reinf.	Forms	Reinf.	Forms	Reinf.	Forms	Reinf.
Beams	10 Ft.	—	—	90 S.F.	170 #	85 S.F.	175 #	75 S.F.	185 #
	16	130 S.F.	165 #	85	180	75	180	65	225
	20	110	170	75	185	62	200	51	200
	26	90	170	65	215	62	215	—	—
	30	85	175	60	200	—	—	—	—

Item	Size	Type	Forms per C.Y.	Reinforcing per C.Y.
Spread Footings	Under 1 C.Y.	1,000 psf soil	24 S.F.	44 lbs.
		5,000	24	42
		10,000	24	52
	1 C.Y. to 5 C.Y.	1,000	14	49
		5,000	14	50
		10,000	14	50
	Over 5 C.Y.	1,000	9	54
		5,000	9	52
		10,000	9	56
Pile Caps (30 Ton Concrete Piles)	Under 5 C.Y.	shallow caps	20	65
		medium	20	50
		deep	20	40
	5 C.Y. to 10 C.Y.	shallow	14	55
		medium	15	45
		deep	15	40
	10 C.Y. to 20 C.Y.	shallow	11	60
		medium	11	45
		deep	12	35
	Over 20 C.Y.	shallow	9	60
		medium	9	45
		deep	10	40

Concrete**R0331 Structural Concrete****R033105-10 Proportionate Quantities (cont.)**

3000 psi Concrete and 60,000 psi Reinforcing — Form and Reinforcing Quantities per C.Y.						
Item	Size	Pile Spacing	50 T Pile	100 T Pile	50 T Pile	100 T Pile
Pile Caps (Steel H Piles)	Under 5 C.Y.	24" O.C.	24 S.F.	24 S.F.	75 lbs.	90 lbs.
		30"	25	25	80	100
		36"	24	24	80	110
	5 C.Y. to 10 C.Y.	24"	15	15	80	110
		30"	15	15	85	110
		36"	15	15	75	90
	Over 10 C.Y.	24"	13	13	85	90
		30"	11	11	85	95
		36"	10	10	85	90
Basement Walls	8" Thick		10" Thick		12" Thick	
	Height	Forms	Reinf.	Forms	Reinf.	Forms
	7 Ft.	81 S.F.	44 lbs.	65 S.F.	45 lbs.	54 S.F.
	8		44		45	44 lbs.
	9		46		45	44
	10		57		45	44
	12		83		50	52
	14		116		65	64
	16				86	90
	18	▼		▼		106

R033105-20 Materials for One C.Y. of Concrete

This is an approximate method of figuring quantities of cement, sand and coarse aggregate for a field mix with waste allowance included.

With crushed gravel as coarse aggregate, to determine barrels of cement required, divide 10 by total mix; that is, for 1-2-4 mix, 10 divided by 7 = 1-3/7 barrels.

If the coarse aggregate is crushed stone, use 10-1/2 instead of 10 as given for gravel.

To determine tons of sand required, multiply barrels of cement by parts of sand and then by 0.2; that is, for the 1-2-4 mix, as above, 1-3/7 x 2 x .2 = .57 tons.

Tons of crushed gravel are in the same ratio to tons of sand as parts in the mix, or $\frac{4}{2} \times .57 = 1.14$ tons.

1 bag cement = 94#

1 C.Y. sand or crushed gravel = 2700#

1 C.Y. crushed stone = 2575#

4 bags = 1 barrel

1 ton sand or crushed gravel = 20 C.F.

1 ton crushed stone = 21 C.F.

Average carload of cement is 692 bags; of sand or gravel is 56 tons.

Do not stack stored cement over 10 bags high.

R033105-30 Metric Equivalents of Cement Content for Concrete Mixes

94 Pound Bags per Cubic Yard	Kilograms per Cubic Meter	94 Pound Bags per Cubic Yard	Kilograms per Cubic Meter
1.0	55.77	7.0	390.4
1.5	83.65	7.5	418.3
2.0	111.5	8.0	446.2
2.5	139.4	8.5	474.0
3.0	167.3	9.0	501.9
3.5	195.2	9.5	529.8
4.0	223.1	10.0	557.7
4.5	251.0	10.5	585.6
5.0	278.8	11.0	613.5
5.5	306.7	11.5	641.3
6.0	334.6	12.0	669.2
6.5	362.5	12.5	697.1

a. If you know the cement content in pounds per cubic yard, multiply by .5933 to obtain kilograms per cubic meter.

b. If you know the cement content in 94 pound bags per cubic yard, multiply by 55.77 to obtain kilograms per cubic meter.

033 05-40 Metric Equivalents of Common Concrete Strengths (to convert other psi values to megapascals, multiply by 0.006895)

U.S. Values psi	SI Value Megapascals	Non-SI Metric Value kgf/cm ² *
2000	14	140
2500	17	175
3000	21	210
3500	24	245
4000	28	280
4500	31	315
5000	34	350
6000	41	420
7000	48	490
8000	55	560
9000	62	630
10,000	69	705

*kgf = kilograms force per square centimeter

033 05-50 Quantities of Cement, Sand and Stone for One C.Y. of Concrete per Various Mixes

These tables can be used to determine the quantities of the ingredients for smaller quantities of site mixed concrete.

Concrete (C.Y.)	Mix = 1:1:1-3/4			Mix = 1:2:2.25			Mix = 1:2.25:3			Mix = 1:3:4		
	Cement (sacks)	Sand (C.Y.)	Stone (C.Y.)	Cement (sacks)	Sand (C.Y.)	Stone (C.Y.)	Cement (sacks)	Sand (C.Y.)	Stone (C.Y.)	Cement (sacks)	Sand (C.Y.)	Stone (C.Y.)
10	.37	.63	7.75	.56	.65	6.25	.52	.70	5	.56	.74	
20	.74	1.26	15.50	1.12	1.30	12.50	1.04	1.40	10	1.12	1.48	
30	1.11	1.89	23.25	1.68	1.95	18.75	1.56	2.10	15	1.68	2.22	
40	1.48	2.52	31.00	2.24	2.60	25.00	2.08	2.80	20	2.24	2.96	
50	1.85	3.15	38.75	2.80	3.25	31.25	2.60	3.50	25	2.80	3.70	
60	2.22	3.78	46.50	3.36	3.90	37.50	3.12	4.20	30	3.36	4.44	
70	2.59	4.41	54.25	3.92	4.55	43.75	3.64	4.90	35	3.92	5.18	
80	2.96	5.04	62.00	4.48	5.20	50.00	4.16	5.60	40	4.48	5.92	
90	3.33	5.67	69.75	5.04	5.85	56.25	4.68	6.30	45	5.04	6.66	
100	3.70	6.30	77.50	5.60	6.50	62.50	5.20	7.00	50	5.60	7.40	
110	4.07	6.93	85.25	6.16	7.15	68.75	5.72	7.70	55	6.16	8.14	
120	4.44	7.56	93.00	6.72	7.80	75.00	6.24	8.40	60	6.72	8.88	
130	4.82	8.20	100.76	7.28	8.46	81.26	6.76	9.10	65	7.28	9.62	
140	5.18	8.82	108.50	7.84	9.10	87.50	7.28	9.80	70	7.84	10.36	
150	5.56	9.46	116.26	8.40	9.76	93.76	7.80	10.50	75	8.40	11.10	
160	5.92	10.08	124.00	8.96	10.40	100.00	8.32	11.20	80	8.96	11.84	
170	6.30	10.72	131.76	9.52	11.06	106.26	8.84	11.90	85	9.52	12.58	
180	6.66	11.34	139.50	10.08	11.70	112.50	9.36	12.60	90	10.08	13.32	
190	7.04	11.98	147.26	10.64	12.36	118.76	9.84	13.30	95	10.64	14.06	
200	7.40	12.60	155.00	11.20	13.00	125.00	10.40	14.00	100	11.20	14.80	
210	7.77	13.23	162.75	11.76	13.65	131.25	10.92	14.70	105	11.76	15.54	
220	8.14	13.86	170.05	12.32	14.30	137.50	11.44	15.40	110	12.32	16.28	
230	8.51	14.49	178.25	12.88	14.95	143.75	11.96	16.10	115	12.88	17.02	
240	8.88	15.12	186.00	13.44	15.60	150.00	12.48	16.80	120	13.44	17.76	
250	9.25	15.75	193.75	14.00	16.25	156.25	13.00	17.50	125	14.00	18.50	
260	9.64	16.40	201.52	14.56	16.92	162.52	13.52	18.20	130	14.56	19.24	
270	10.00	17.00	209.26	15.12	17.56	168.76	14.04	18.90	135	15.02	20.00	
280	10.36	17.64	217.00	15.68	18.20	175.00	14.56	19.60	140	15.68	20.72	
290	10.74	18.28	224.76	16.24	18.86	181.26	15.08	20.30	145	16.24	21.46	

Concrete**R0331 Structural Concrete****R033105-65 Field-Mix Concrete**

Presently most building jobs are built with ready-mixed concrete except at isolated locations and some larger jobs requiring over 10,000 C.Y. where land is readily available for setting up a temporary batch plant.

The most economical mix is a controlled mix using local aggregate proportioned by trial to give the required strength with the least cost of material.

R033105-70 Placing Ready-Mixed Concrete

For ground pours allow for 5% waste when figuring quantities.

Prices in the front of the book assume normal deliveries. If deliveries are made before 8 A.M. or after 5 P.M. or on Saturday afternoons add 30%. Negotiated discounts for large volumes are not included in prices in front of book.

For the lower floors without truck access, concrete may be wheeled in rubber-tired buggies, conveyer handled, crane handled or pumped. Pumping is economical if there is top steel. Conveyers are more efficient for thick slabs.

At higher floors the rubber-tired buggies may be hoisted by a hoisting tower and wheeled to location. Placement by a conveyer is limited to three floors

and is best for high-volume pours. Pumped concrete is best when building has no crane access. Concrete may be pumped directly as high as thirty stories using special pumping techniques. Normal maximum height is about fifteen stories.

Best pumping aggregate is screened and graded bank gravel rather than crushed stone.

Pumping downward is more difficult than pumping upward. Horizontal distance from pump to pour may increase preparation time prior to pour. Placing by cranes, either mobile, climbing or tower types, continues as the most efficient method for high-rise concrete buildings.

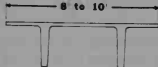
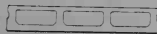
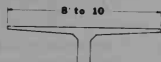
R033105-85 Lift Slabs

The cost advantage of the lift slab method is due to placing all concrete, reinforcing steel, inserts and electrical conduit at ground level and in reduction of formwork. Minimum economical project size is about 30,000 S.F. Slabs may be tilted for parking garage ramps.

It is now used in all types of buildings and has gone up to 22 stories high in apartment buildings. Current trend is to use post-tensioned flat plate slabs with spans from 22' to 35'. Cylindrical void forms are used when deep slabs are required. One pound of prestressing steel is about equal to seven pounds of conventional reinforcing.

To be considered cured for stressing and lifting, a slab must have attained 75% of design strength. Seven days are usually sufficient with four to five days possible if high early strength cement is used. Slabs can be stacked using two coats of a non-bonding agent to insure that slabs do not stick to each other. Lifting is done by companies specializing in this work. Lift rate is 5' to 15' per hour with an average of 10' per hour. Total areas up to 35,000 S.F. have been lifted at one time. 24 to 36 jacking columns are common. Most economical bay sizes are 24' to 28' with four to fourteen stories possible. Continuous design reduces reinforcing steel cost. Use of post-tensioned slabs allows larger bay sizes.

03405-30 Prestressed Precast Concrete Structural Units

Type	Location	Depth	Span in Ft.		Live Load Lb. per S.F.
Double Tee 	Floor	28" to 34"	60 to 80		50 to 80
	Roof	12" to 24"	30 to 50		40
	Wall	Width 8'	Up to 55' high		Wind
Multiple Tee 	Roof	8" to 12"	15 to 40		40
	Floor	8" to 12"	15 to 30		100
Plank  or 	Roof	4" 6" 8" 10" 12"	Roof	Floor	40 for Roof
			13 22 26 33 42	12 18 25 29 32	
	or				100 for Floor
	Floor				
Single Tee 	Roof	28" 32" 36" 48"	40 80 100 120		40
AASHTO Girder 	Bridges	Type 4 5 6	100 110 125		Highway
Box Beam 	Bridges	15" 27" 33"	40 to 100		Highway

Majority of precast projects today utilize double tees rather than single tees because of speed and ease of installation. As a result casting beds at manufacturing plants are normally formed for double tees. Single tee projects therefore require an initial set up charge to be spread over the individual single tee costs.

For roofs, a 2" to 3" topping is field cast over the shapes. For floors, concrete or rigid insulation is placed over the shapes.

Standard lengths up to 40' are standard haul, 40' to 60' require special permits and lengths over 60' must be escorted. Over width and/or over height can add up to 100% on hauling costs.

Large heavy members may require two cranes for lifting which would increase erection costs by about 45%. An eight man crew can install 12 to 20 double tees, or 45 to 70 quad tees or planks per day.

Grouting of connections must also be included.

Several system buildings utilizing precast members are available. Heights can go up to 22 stories for apartment buildings. Optimum design ratio is 3 S.F. of surface to 1 S.F. of floor area.

R034136-90 Prestressed Concrete, Post-Tensioned

In post-tensioned concrete the steel tendons are tensioned after the concrete has reached about 3/4 of its ultimate strength. The cableways are grouted after tensioning to provide bond between the steel and concrete. If bond is to be prevented, the tendons are coated with a corrosion-preventative grease and wrapped with waterproofed paper or plastic. Bonded tendons are usually used when ultimate strength (beams & girders) are controlling factors.

High strength concrete is used to fully utilize the steel, thereby reducing the size and weight of the member. A plasticizing agent may be added to reduce water content. Maximum size aggregate ranges from 1/2" to 1-1/2" depending on the spacing of the tendons.

The types of steel commonly used are bars and strands. Job conditions determine which is best suited. Bars are best for vertical prestresses since

they are easy to support. The trend is for steel manufacturers to supply a finished package, cut to length, which reduces field preparation to a minimum.

Bars vary from 3/4" to 1-3/8" diameter. Table below gives time in labor-hours per tendon for placing, tensioning and grouting (if required) a 75' beam. Tendons used in buildings are not usually grouted; tendons for bridges must be grouted. For strands the table indicates the labor-hours per pound for typical prestressed units 100' long. Simple span beams usually require one end stressing regardless of lengths. Continuous beams are usually stressed from two ends. Long slabs are poured from the center outward and stressed in 75' increments after the initial 150' center pour.

Labor Hours per Tendon and per Pound of Prestressed Steel						
Length	100' Beam		75' Beam		100' Slab	
Type Steel	Strand		Bars		Strand	
Diameter	0.5"		3/4"	1-3/8"	0.5"	0.6"
Number	4	12	1	1	1	1
Force in Kips	100	300	42	143	25	35
Preparation & Placing Cables	3.6	7.4	0.9	2.9	0.9	1.1
Stressing Cables	2.0	2.4	0.8	1.6	0.5	0.5
Grouting, if required	2.5	3.0	0.6	1.3		
Total Labor Hours	8.1	12.8	2.3	5.8	1.4	1.6
Prestressing Steel Weights (Lbs.)	215	640	115	380	53	74
Labor-hours per Lb. Bonded	0.038	0.020	0.020	0.015	0.026	0.022
Non-bonded						

Flat Slab construction — 4000 psi concrete with span-to-depth ratio between 36 and 44. Two way post-tensioned steel averages 1.0 lb. per S.F. for 24' to 28' bays (usually strand) and additional reinforcing steel averages .5 lb. per S.F.

Pan and Joist construction — 4000 psi concrete with span-to-depth ratio 28 to 30. Post-tensioned steel averages .8 lb. per S.F. and reinforcing steel about 1.0 lb. per S.F. Placing and stressing averages 40 hours per ton of total material.

Beam construction — 4000 to 5000 psi concrete. Steel weights vary greatly.

Labor cost per pound goes down as the size and length of the tendon increase. The primary economic consideration is the cost per kip for the member.

Post-tensioning becomes feasible for beams and girders over 30' long for continuous two-way slabs over 20' clear; also in transferring upper building loads over longer spans at lower levels. Post-tension suppliers will provide engineering services at no cost to the user. Substantial economies are produced by using post-tensioned Lift Slabs.

Concrete**R0345 Precast Architectural Concrete****3413-10 Precast Concrete Wall Panels**

panels are either solid or insulated with plain, colored or textured finishes. Transportation is an important cost factor. Prices shown in the unit cost section of the book are based on delivery within 50 miles of a plant including local overhead and profit. Engineering data is available from fabricators with construction details. Usual minimum job size for economical installation of panels is about 5000 S.F. Small jobs can double the prices shown. For highly repetitive jobs, deduct up to 15% from the prices shown. Precast panels cost about the same as 3" thick panels, and maximum panel size is 14'. For building panels faced with granite, marble or stone, add material prices from those unit cost sections to the plain panel price. There is a growing trend toward aggregate facings and broken rib finish rather than plain gray concrete panels.

No allowance has been made in the unit cost section for supporting steel framework. On one story buildings, panels may rest on grade beams and require only wind bracing and fasteners. On multi-story buildings panels can span from column to column and floor to floor. Plastic-designed steel-framed structures may have large deflections which slow down erection and raise costs.

Large panels are more economical than small panels on a S.F. basis. When figuring areas include all protrusions, returns, etc. Overhangs can triple erection costs. Panels over 45' have been produced. Larger flat units should be prestressed. Vacuum lifting of smooth finish panels eliminates inserts and can speed erection.

Concrete**R0347 Site-Cast Concrete****3413-20 Tilt Up Concrete Panels**

Advantage of tilt up construction is in the low cost of forms and the use of concrete and reinforcing. Panels up to 75' high and 5-1/2" thick can be tilted using strongbacks. Tilt up has been used for one to five story buildings and is well-suited for warehouses, stores, offices, schools and dorms.

Panels are cast in forms on the floor slab. Most jobs use 5-1/2" thick reinforced concrete panels. Sandwich panels with a layer of insulating material are also used. Where dampness is a factor, lightweight aggregate concrete is used. Minimum panel size is 300 to 500 S.F.

Concrete is usually poured with 3000 psi concrete which permits tilting seven days after pouring. Slabs may be stacked on top of each other and are separated from each other by either two coats of bond breaker or a film of polyethylene. Use of high early-strength cement allows tilting two days after pour. Tilting up is done with a roller outrigger crane with a capacity of 1-1/2 times the weight of the panel at the required reach. Precast columns can be set at the same time as the panels; interior columns can be set first and the panels clipped directly to them. Use of cast-in-place concrete columns is diminishing due to shrinkage problems. Structural steel columns are sometimes used if crane rails are needed. Panels can be clipped to the columns or lowered between the columns. Steel channels with anchors may be used as edge forms for the slab. When panels are lifted the channels form an integral steel column to support structural loads. Roof loads can be carried directly by the panels for wall heights up to 14'.

Requirements of local building codes may be a limiting factor and should be checked. Building floor slabs should be poured first and should be a minimum of 5" thick with 100% compaction of soil or 6" thick with less than 100% compaction.

Setting times as fast as nine minutes per panel have been observed, but a safer expectation would be four panels per hour with a crane and a four-man setting crew. If crane erects from inside building, some provision must be made to get crane out after walls are erected. Good yarding procedure is important to minimize delays. Equalizing three-point lifting beams and self-releasing pick-up hooks speed erection. If panels must be carried to their final location, setting time per panel will be increased and erection costs may approach the erection cost range of architectural precast wall panels. Placing panels into slots formed in continuous footers will speed erection.

Reinforcing should be with #5 bars with vertical bars on the bottom. If surface is to be sandblasted, stainless steel chairs should be used to prevent rust staining.

Use of a broom finish is popular since the unavoidable surface blemishes are concealed.

Precast columns run from three to five times the C.Y. price of the panels only.

Concrete**R0352 Lightweight Concrete Roof Insulation****3516-10 Lightweight Concrete**

Lightweight aggregate concrete is usually purchased ready mixed, but it can be field mixed.

Concrete or Perlite comes in bags of 4 C.F. under various trade names. Weight about 8 lbs. per C.F. For insulating roof fill use 1:6 mix. For concrete deck use 1:4 mix over gypsum boards, steeldeck, steel centering, supported by closely spaced joists or bulb tees. For structural slabs use 1:2 vinylite sand concrete over steeldeck, metal lath, steel centering, joists spaced 2'-0" O.C. for maximum L.L. of 80 P.S.F. Use same mix

for slab base fill over steel flooring or regular reinforced concrete slab when tile, terrazzo or other finish is to be laid over.

For slabs on grade use 1:3:2 mix when tile, etc., finish is to be laid over. If radiant heating units are installed use a 1:6 mix for a base. After coils are in place, cover with a regular granolithic finish (mix 1:3:2) to a minimum depth of 1-1/2" over top of units.

Reinforce all slabs with 6 x 6 or 10 x 10 welded wire mesh.

Masonry**R0401 Maintenance of Masonry****R040130-10 Cleaning Face Brick**

On smooth brick a person can clean 70 S.F. an hour; on rough brick 50 S.F. per hour. Use one gallon muriatic acid to 20 gallons of water for 1000

S.F. Do not use acid solution until wall is at least seven days old, but a soap solution may be used after two days.

Time has been allowed for clean-up in brick prices.

Masonry**R0405 Common Work Results for Masonry****R040513-10 Cement Mortar (material only)**

Type N - 1:1:6 mix by volume. Use everywhere above grade except as noted below. - 1:3 mix using conventional masonry cement which saves handling two separate bagged materials.

Type M - 1:1/4:3 mix by volume, or 1 part cement, 1/4 (10% by wt.) lime parts sand. Use for heavy loads and where earthquakes or hurricanes may occur. Also for reinforced brick, sewers, manholes and everywhere below grade.

Mix Proportions by Volume and Compressive Strength of Mortar

Where Used	Allowable Proportions by Volume					Compressive Strength @ 28 days
	Mortar Type	Portland Cement	Masonry Cement	Hydrated Lime	Masonry Sand	
Plain Masonry		1	1	—	6	
	M	1	—	1/4	3	2500 psi
		1/2	1	—	4	
	S	1	—	1/4 to 1/2	4	1800 psi
		—	1	—	3	
	N	1	—	1/2 to 1-1/4	6	750 psi
Reinforced Masonry		—	1	—	3	
	O	1	—	1-1/4 to 2-1/2	9	350 psi
		—	—	2-1/2 to 4	12	75 psi
	K	1	—	—	6	2500 psi
Reinforced Masonry	PM	1	1	—	6	2500 psi
	PL	1	—	1/4 to 1/2	4	2500 psi

Note: The total aggregate should be between 2.25 to 3 times the sum of the cement and lime used.

The labor cost to mix the mortar is included in the productivity and labor cost of unit price lines in unit cost sections for brickwork, blockwork and stonework.

The material cost of mixed mortar is included in the material cost of those same unit price lines and includes the cost of renting and operating a 10 C.F. mixer at the rate of 200 C.F. per day.

There are two types of mortar color used. One type is the inert additive type with about 100 lbs. per M brick as the typical quantity required. The colors are also available in smaller-batch-sized bags (1 lb. to 15 lb.) which can be placed directly into the mixer without measuring. The other type premixed and replaces the masonry cement. Dark green color has the highest cost.

R040519-50 Masonry Reinforcing

Horizontal joint reinforcing helps prevent wall cracks where wall movement may occur and in many locations is required by code. Horizontal joint reinforcing is generally not considered to be structural reinforcing and an unreinforced wall may still contain joint reinforcing.

Reinforcing strips come in 10' and 12' lengths and in truss and ladder shapes, with and without drips. Field labor runs between 2.7 to 5.3 hours per 1000 L.F. for wall thicknesses up to 12".

The wire meets ASTM A82 for cold drawn steel wire and the typical size 9 ga. sides and ties with 3/16" diameter also available. Typical finish is mill galvanized with zinc coating at .10 oz. per S.F. Class I (.40 oz. per S.F.) and Class III (.80 oz. per S.F.) are also available, as is hot dipped galvanneal at 1.50 oz. per S.F.

10-10 Economy in Bricklaying

adequate supervision. Be sure bricklayers are always supplied with so there is no waiting. Place best bricklayers at corners and

screened sand for mortar. Otherwise, labor time will be wasted at pebbles. Use seamless metal tubs for mortar as they do not leak the trowel. Locate stack and mortar for easy wheeling.

brick delivered for stacking. This makes for faster handling, reduces and breakage, and requires less storage space. Many dealers will effect common in 2' x 3' x 4' pallets or face brick packaged. This quick handling with a crane or forklift and easy tonging in units of which reduces waste.

Use wider bricks for one wythe wall construction. Keep scaffolding away from wall to allow mortar to fall clear and not stain wall.

On large jobs develop specialized crews for each type of masonry unit.

Consider designing for prefabricated panel construction on high rise projects.

Avoid excessive corners or openings. Each opening adds about 50% to labor cost for area of opening.

Bolting stone panels and using window frames as stops reduces labor costs and speeds up erection.

10-20 Common and Face Brick

building brick manufactured according to ASTM C62 and facing brick manufactured according to ASTM C216 are the two standard bricks for general building use.

brick is made in three grades; SW, where high resistance to damage used; cyclic freezing is required; MW, where moderate resistance to cyclic freezing is needed; and NW, where little resistance to cyclic freezing needed. Facing brick is made in only the two grades SW and MW. Additionally, facing brick is available in three types; FBS, for general use; X, for general use where a higher degree of precision and lower misle variation in size than FBS is needed; and FBA, for general use to produce characteristic architectural effects resulting from non-uniformity size and texture of the units.

figuring the material cost of brickwork, an allowance of 25% mortar and 3% brick breakage was included. If bricks are delivered palletized

with 280 to 300 per pallet, or packaged, allow only 1-1/2% for breakage. Packaged or palletized delivery is practical when a job is big enough to have a crane or other equipment available to handle a package of brick. This is so on all industrial work but not always true on small commercial buildings.

The use of buff and gray face is increasing, and there is a continuing trend to the Norman, Roman, Jumbo and SCR brick.

Common red clay brick for backup is not used that often. Concrete block is the most usual backup material with occasional use of sand lime or cement brick. Building brick is commonly used in solid walls for strength and as a fire stop.

Brick panels built on the ground and then crane erected to the upper floors have proven to be economical. This allows the work to be done under cover and without scaffolding.

10-50 Brick, Block & Mortar Quantities

Running Bond						For Other Bonds Standard Size Add to S.F. Quantities in Table to Left		
Number of Brick per S.F. of Wall - Single Wythe with 3/8" Joints				C.F. of Mortar per M Bricks, Waste Included		Bond Type	Description	Factor
Nominal Size (incl. mortar) L H W		Modular Coursing	Number of Brick per S.F.	3/8" Joint	1/2" Joint			
8 x 2-2/3 x 4	8 x 4 x 4	3C=8"	6.75	10.3	12.9	Common	full header every fifth course	+20%
		1C=4"	4.50	11.4	14.6		full header every sixth course	+16.7%
8 x 3-1/5 x 4	9 x 2-1/2 x 4-1/2	5C=16"	5.63	10.6	13.6	English	full header every second course	+50%
		2C=5"	6.40	550 # Fireclay	—	Flemish	alternate headers every course every sixth course	+33.3% +5.6%
12 x 4 x 6 or 8	12 x 2-2/3 x 4	1C=4"	3.00	23.8	30.8	Header = W x H exposed Rowlock = H x W exposed Rowlock stretcher = L x W exposed Soldier = H x L exposed Sailor = W x L exposed		+100%
		3C=8"	4.50	14.0	17.9			+100%
12 x 3-1/5 x 4	12 x 2 x 4	5C=16"	3.75	14.6	18.6			+33.3%
		2C=4"	6.00	13.4	17.0			—
12 x 2-2/3 x 6	12 x 4 x 4	3C=8"	4.50	21.8	28.0			-33.3%
		1C=4"	3.00	15.4	19.6			

Concrete Blocks Nominal Size		Approximate Weight per S.F.		Blocks per 100 S.F.	Mortar per M block, waste included	
		Standard	Lightweight		Partitions	Back up
2" 4" 6" 8" 10" 12"	x 8" x 16"	20	15	113	27	36
		PSF	PSF		C.F.	C.F.
		30	20		41	51
		42	30		56	66
		55	38		72	82
		70	47		87	97
		85	55		102	112

Masonry**R0422 Concrete Unit Masonry****R042210-20 Concrete Block**

The material cost of special block such as corner, jamb and head block can be figured at the same price as ordinary block of same size. Labor on specials is about the same as equal-sized regular block.

Bond beam and 16" high lintel blocks are more expensive than regular units of equal size. Lintel blocks are 8" long and either 8" or 16" high.

Use of motorized mortar spreader box will speed construction of concrete walls.

Hollow non-load-bearing units are made according to ASTM C129 and full load-bearing units according to ASTM C90.

Metals**R0505 Common Work Results for Metals****R050516-30 Coating Structural Steel**

On field-welded jobs, the shop-applied primer coat is necessarily omitted. All painting must be done in the field and usually consists of red oxide rust inhibitive paint or an aluminum paint. The table below shows paint coverage and daily production for field painting.

See Division 09 97 13.23 for hot-dipped galvanizing and for field-applied cold galvanizing and other paints and protective coatings.

See Division 05 01 10.51 for steel surface preparation treatments such as wire brushing, pressure washing and sand blasting.

Type Construction	Surface Area per Ton	Coat	One Gallon Covers		In 8 Hrs. Person Covers		Average per Ton Spray	
			Brush	Spray	Brush	Spray	Gallons	Labor-hour
Light Structural	300 S.F. to 500 S.F.	1st	500 S.F.	455 S.F.	640 S.F.	2000 S.F.	0.9 gals.	1.6 L.H.
		2nd	450	410	800	2400	1.0	1.3
		3rd	450	410	960	3200	1.0	1.0
Medium	150 S.F. to 300 S.F.	All	400	365	1600	3200	0.6	0.6
Heavy Structural	50 S.F. to 150 S.F.	1st	400	365	1920	4000	0.2	0.2
		2nd	400	365	2000	4000	0.2	0.2
		3rd	400	365	2000	4000	0.2	0.2
Weighted Average	225 S.F.	All	400	365	1350	3000	0.6	0.6

R050521-20 Welded Structural Steel

Usual weight reductions with welded design run 10% to 20% compared with bolted or riveted connections. This amounts to about the same total cost compared with bolted structures since field welding is more expensive than bolts. For normal spans of 18' to 24' figure 6 to 7 connections per ton.

Trusses — For welded trusses add 4% to weight of main members for connections. Up to 15% less steel can be expected in a welded truss compared to one that is shop bolted. Cost of erection is the same whether shop bolted or welded.

General — Typical electrodes for structural steel welding are E6010, E6011, E60T and E70T. Typical buildings vary between 2# to 8# of weld rod per

ton of steel. Buildings utilizing continuous design require about three times as much welding as conventional welded structures. In estimating field erection by welding, it is best to use the average linear feet of weld per ton to arrive at the welding cost per ton. The type, size and position of the weld will have a direct bearing on the cost per linear foot. A typical field welder will deposit 1.8# to 2# of weld rod per hour manually. Using semiautomatic methods can increase production by as much as 50% to 75%.

R050523-10 High Strength Bolts

Common bolts (A307) are usually used in secondary connections (see Division 05 05 23.10).

High strength bolts (A325 and A490) are usually specified for primary connections such as column splices, beam and girder connections to columns, column bracing, connections for supports of operating equipment or of other live loads which produce impact or reversal of stress, and in structures carrying cranes of over 5-ton capacity.

Allow 20 field bolts per ton of steel for a 6 story office building, apartment house or light industrial building. For 6 to 12 stories allow 25 bolts per ton, and above 12 stories, 30 bolts per ton. On power stations, 20 to 25 bolts per ton are needed.

05123-10

Structural Steel

Material prices for structural steel, shown in the unit cost sections of the book, are for 100 tons of shop-fabricated structural steel and include:

- Mill base price of structural steel
- Mill scrap/grade/size/length extras
- Mill delivery to a metals service center (warehouse)
- Service center storage and handling
- Service center delivery to a fabrication shop
- Shop storage and handling
- Shop drafting/detailing
- Shop fabrication

9. Shop coat of primer paint
10. Shop listing
11. Shop delivery to the job site

In unit cost sections of the book that contain items for field fabrication of steel components, the bare material cost of steel includes:

1. Mill base price of structural steel
2. Mill scrap/grade/size/length extras
3. Mill delivery to a metals service center (warehouse)
4. Service center storage and handling
5. Service center delivery to the job site

05123-20

Steel Estimating Quantities

The estimate on erection is that a crane can handle 35 to 60 pieces per day. The average is 45. With usual sizes of beams, girders, and columns, it will amount to about 20 tons per day. The type of connection greatly affects the speed of erection. Moment connections for continuous design slow down production and increase erection costs.

Open web bar joists can be set at the rate of 75 to 80 per day, with the average being the average for setting long span joists.

When members are calculated, add the following for usual allowances: splice 2% to 3%; column splices 4% to 5%; and miscellaneous details 1% to 2%, for a total of 10% to 13% in addition to main members.

The ratio of column to beam tonnage varies depending on type of steel used, typical spans, story heights and live loads.

It is more economical to keep the column size constant and to vary the length of the column by using high strength steels. This also saves floor space. Buildings have recently gone as high as ten stories with 8" high strength columns. For light columns under W8X31 lb. sections, concrete filled columns are economical.

High strength steels may be used in columns and beams to save floor space and to meet head room requirements. High strength steels in some sizes sometimes require long lead times.

Round, square and rectangular columns, both plain and concrete filled, are readily available and save floor area, but are higher in cost per pound than rolled columns. For high unbraced columns, tube columns may be less expensive.

Below are average minimum figures for the weights of the structural steel frame for different types of buildings using A36 steel, rolled shapes and simple joints. For economy in domes, rise to span ratio = .13. Open web joist framing systems will reduce weights by 10% to 40%. Composite design can reduce steel weight by up to 25% but additional concrete floor slab thickness may be required. Continuous design can reduce the weights up to 20%. There are many building codes with different live load requirements and different structural requirements, such as hurricane and earthquake loadings which can alter the figures.

Structural Steel Weights per S.F. of Floor Area									
Type of Building	No. of Stories	Avg. Spans	L.L. #/S.F.	Lbs. Per S.F.	Type of Building	No. of Stories	Avg. Spans	L.L. #/S.F.	Lbs. Per S.F.
Steel Frame Mfg.	1	20'x20'	40	8	Apartments	2-8	20'x20'	40	8
		30'x30'		13		9-25			14
		40'x40'		18		to 10			10
Parking garage	4	Various	80	8.5	Office	20	Various	80	18
Domes	1	200'	30	10		30			26
Shed (welded)*		300'		15		over 50			35

R051223-25 Common Structural Steel Specifications

ASTM A992 (formerly A36, then A572 Grade 50) is the all-purpose carbon grade steel widely used in building and bridge construction.

The other high-strength steels listed below may each have certain advantages over ASTM A992 structural carbon steel, depending on the application.

They have proven to be economical choices where, due to lighter members, the reduction of dead load and the associated savings in shipping cost can be significant.

ASTM A588 atmospheric weathering, high-strength low-alloy steels can be used in the bare (uncoated) condition, where exposure to normal atmosphere causes a tightly adherent oxide to form on the surface protecting the steel from further oxidation. ASTM A242 corrosion-resistant, high-strength low-alloy steels have enhanced atmospheric corrosion resistance of at least two times that of carbon structural steels with copper, or four times that of carbon structural steels without copper. The reduction or elimination of maintenance resulting from the use of these steels often offsets their higher initial cost.

Steel Type	ASTM Designation	Minimum Yield Stress in KSI	Shapes Available
Carbon	A36	36	All structural shape groups, and plates & bars up thru 8" thick
	A529	50	Structural shape group 1, and plates & bars up thru 2" thick
High-Strength Low-Alloy Quenched & Self-Tempered	A913	50	All structural shape groups
		60	
		65	
		70	
High-Strength Low-Alloy Columbium-Vanadium	A572	42	All structural shape groups, and plates & bars up thru 6" thick
		50	All structural shape groups, and plates & bars up thru 4" thick
		55	Structural shape groups 1 & 2, and plates & bars up thru 2" thick
		60	Structural shape groups 1 & 2, and plates & bars up thru 1-1/4" thick
		65	Structural shape group 1, and plates & bars up thru 1-1/4" thick
High-Strength Low-Alloy Columbium-Vanadium	A992	50	All structural shape groups
Weathering High-Strength Low-Alloy	A242	42	Structural shape groups 4 & 5, and plates & bars over 1-1/2" up thru 4" thick
		46	Structural shape group 3, and plates & bars over 3/4" up thru 1-1/2" thick
		50	Structural shape groups 1 & 2, and plates & bars up thru 3/4" thick
Weathering High-Strength Low-Alloy	A588	42	Plates & bars over 5" up thru 8" thick
		46	Plates & bars over 4" up thru 5" thick
		50	All structural shape groups, and plates & bars up thru 4" thick
Quenched and Tempered Low-Alloy	A852	70	Plates & bars up thru 4" thick
Quenched and Tempered Alloy	A514	90	Plates & bars over 2-1/2" up thru 6" thick
		100	Plates & bars up thru 2-1/2" thick

R051223-30 High Strength Steels

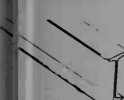
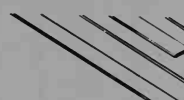
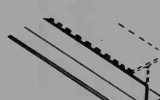
The mill price of high strength steels may be higher than A992 carbon steel but their proper use can achieve overall savings thru total reduced weights. For columns with L/r over 100, A992 steel is best; under 100, high strength steels are economical. For heavy columns, high strength steels are economical when cover plates are eliminated. There is no economy using high strength steels for clip angles or supports or for beams where deflection governs. Thinner members are more economical than thick.

The per ton erection and fabricating costs of the high strength steels will be higher than for A992 since the same number of pieces, but less weight, will be installed.

5123-35 Common Steel Sections

portion of this table shows the name, shape, common designation and characteristics of commonly used steel sections. The lower

portion explains how to read the designations used for the above illustrated common sections.

Shape & Designation	Name & Characteristics	Shape & Designation	Name & Characteristics
	W Shape Parallel flange surfaces		Miscellaneous Channel Infrequently rolled by some producers
	American Standard Beam (I Beam) Sloped inner flange		Angle Equal or unequal legs, constant thickness
	Miscellaneous Beams Cannot be classified as W, HP or S; infrequently rolled by some producers		Structural Tee Cut from W, M or S on center of web
	American Standard Channel Sloped inner flange		Bearing Pile Parallel flanges and equal flange and web thickness

drawing designations follow:

Shape
 18 x 35
 Weight in Pounds per Foot
 Nominal Depth in Inches (Actual 17-3/4")

American Standard Beam
 12 x 31.8
 Weight in Pounds per Foot
 Depth in Inches

Miscellaneous Beam
 8 x 6.5
 Weight in Pounds per Foot
 Depth in Inches

American Standard Channel
 8 x 11.5
 Weight in Pounds per Foot
 Depth in Inches

Miscellaneous Channel
 C 8 x 22.8
 Weight in Pounds per Foot
 Depth in Inches

Angle
 L 6 x 3-1/2 x 3/8
 Length of Long Leg in Inches
 Thickness of Each Leg in Inches
 Length of Other Leg in Inches

Tee Cut from W16 x 100
 WT 8 x 50
 Weight in Pounds per Foot
 Nominal Depth in Inches (Actual 8-1/2")

Tee Cut from S12 x 35
 ST 6 x 17.5
 Weight in Pounds per Foot
 Depth in Inches (Actual 6-1/4")

Tee Cut from M10 x 9
 MT 5 x 4.5
 Weight in Pounds per Foot
 Depth in Inches

Bearing Pile
 HP 12 x 84
 Weight in Pounds per Foot
 Nominal Depth in Inches (Actual 12-1/4")

Metals

R0512 Structural Steel Framing

R051223-45 Installation Time for Structural Steel Building Components

The following tables show the expected average installation times for various structural steel shapes. Table A presents installation times for columns, Table B for beams, Table C for light framing and bolts, and Table D for structural steel for various project types.

Table A		
Description	Labor-Hours	Unit
Columns		
Steel, Concrete Filled		
3-1/2" Diameter	.933	Ea.
6-5/8" Diameter	1.120	Ea.
Steel Pipe		
3" Diameter	.933	Ea.
8" Diameter	1.120	Ea.
12" Diameter	1.244	Ea.
Structural Tubing		
4" x 4"	.966	Ea.
8" x 8"	1.120	Ea.
12" x 8"	1.167	Ea.
W Shape 2 Tier		
W8 x 31	.052	L.F.
W8 x 67	.057	L.F.
W10 x 45	.054	L.F.
W10 x 112	.058	L.F.
W12 x 50	.054	L.F.
W12 x 190	.061	L.F.
W14 x 74	.057	L.F.
W14 x 176	.061	L.F.

Table B				
Description	Labor-Hours	Unit	Labor-Hours	Unit
Beams, W Shape				
W6 x 9	.949	Ea.	.093	L.F.
W10 x 22	1.037	Ea.	.085	L.F.
W12 x 26	1.037	Ea.	.064	L.F.
W14 x 34	1.333	Ea.	.069	L.F.
W16 x 31	1.333	Ea.	.062	L.F.
W18 x 50	2.162	Ea.	.088	L.F.
W21 x 62	2.222	Ea.	.077	L.F.
W24 x 76	2.353	Ea.	.072	L.F.
W27 x 94	2.581	Ea.	.067	L.F.
W30 x 108	2.857	Ea.	.067	L.F.
W33 x 130	3.200	Ea.	.071	L.F.
W36 x 300	3.810	Ea.	.077	L.F.

Table C		
Description	Labor-Hours	Unit
Light Framing		
Angles 4" and Larger	.055	lbs.
Less than 4"	.091	lbs.
Channels 8" and Larger	.048	lbs.
Less than 8"	.072	lbs.
Cross Bracing Angles	.055	lbs.
Rods	.034	lbs.
Hanging Lintels	.069	lbs.
High Strength Bolts in Place		
3/4" Bolts	.070	Ea.
7/8" Bolts	.076	Ea.

Table D				
Description	Labor-Hours	Unit	Labor-Hours	Unit
Apartments, Nursing Homes, etc.				
1-2 Stories	4.211	Piece	7.767	Ton
3-6 Stories	4.444	Piece	7.921	Ton
7-15 Stories	4.923	Piece	9.014	Ton
Over 15 Stories	5.333	Piece	9.209	Ton
Offices, Hospitals, etc.				
1-2 Stories	4.211	Piece	7.767	Ton
3-6 Stories	4.741	Piece	8.889	Ton
7-15 Stories	4.923	Piece	9.014	Ton
Over 15 Stories	5.120	Piece	9.209	Ton
Industrial Buildings				
1 Story	3.478	Piece	6.202	Ton

R051223-50 Subpurlins

Bulb tee subpurlins are structural members designed to support and reinforce a variety of roof deck systems such as precast cement fiber roof deck tiles, monolithic roof deck systems, and gypsum or lightweight concrete over formboard. Other uses include interstitial service ceiling systems, wall panel

systems, and joist anchoring in bond beams. See Unit Price section for pricing on a square foot basis at 32-5/8" O.C. Maximum span is based on 3-span condition with a total allowable vertical load of 40 psf.

05123-80 Dimensions and Weights of Sheet Steel

Sheet No.	Approximate Thickness				Weight		
	Inches (in fractions)	Inches (in decimal parts)		Millimeters	per S.F. in Ounces	per S.F. in Lbs.	per Square Meter in Kg.
	Wrought Iron	Wrought Iron	Steel	Steel			
0000	1/2"	.5	.4782	12.146	320	20.000	97.650
0000	15/32"	.46875	.4484	11.389	300	18.750	91.550
0000	7/16"	.4375	.4185	10.630	280	17.500	85.440
0000	13/32"	.40625	.3886	9.870	260	16.250	79.330
000	3/8"	.375	.3587	9.111	240	15.000	73.240
00	11/32"	.34375	.3288	8.352	220	13.750	67.130
0	5/16"	.3125	.2989	7.592	200	12.500	61.030
1	9/32"	.28125	.2690	6.833	180	11.250	54.930
2	17/64"	.265625	.2541	6.454	170	10.625	51.880
3	1/4"	.25	.2391	6.073	160	10.000	48.820
4	15/64"	.234375	.2242	5.695	150	9.375	45.770
5	7/32"	.21875	.2092	5.314	140	8.750	42.720
6	13/64"	.203125	.1943	4.935	130	8.125	39.670
7	3/16"	.1875	.1793	4.554	120	7.500	36.320
8	11/64"	.171875	.1644	4.176	110	6.875	33.570
9	5/32"	.15625	.1495	3.797	100	6.250	30.520
10	9/64"	.140625	.1345	3.416	90	5.625	27.460
11	1/8"	.125	.1196	3.038	80	5.000	24.410
12	7/64"	.109375	.1046	2.657	70	4.375	21.360
13	3/32"	.09375	.0897	2.278	60	3.750	18.310
14	5/64"	.078125	.0747	1.897	50	3.125	15.260
15	9/128"	.0713125	.0673	1.709	45	2.813	13.730
16	1/16"	.0625	.0598	1.519	40	2.500	12.210
17	9/160"	.05625	.0538	1.367	36	2.250	10.990
18	1/20"	.05	.0478	1.214	32	2.000	9.765
19	7/160"	.04375	.0418	1.062	28	1.750	8.544
20	3/80"	.0375	.0359	.912	24	1.500	7.324
21	11/320"	.034375	.0329	.836	22	1.375	6.713
22	1/32"	.03125	.0299	.759	20	1.250	6.103
23	9/320"	.028125	.0269	.683	18	1.125	5.490
24	1/40"	.025	.0239	.607	16	1.000	4.882
25	7/320"	.021875	.0209	.531	14	.875	4.272
26	3/160"	.01875	.0179	.455	12	.750	3.662
27	11/640"	.0171875	.0164	.417	11	.688	3.357
28	1/64"	.015625	.0149	.378	10	.625	3.052

R053100-10 Decking Descriptions**General - All Deck Products**

Steel deck is made by cold forming structural grade sheet steel into a repeating pattern of parallel ribs. The strength and stiffness of the panels are the result of the ribs and the material properties of the steel. Deck lengths can be varied to suit job conditions, but because of shipping considerations, are usually less than 40 feet. Standard deck width varies with the product used but full sheets are usually 12", 18", 24", 30", or 36". Deck is typically furnished in a standard width with the ends cut square. Any cutting for width, such as at openings or for angular fit, is done at the job site.

Deck is typically attached to the building frame with arc puddle welds, self-drilling screws, or powder or pneumatically driven pins. Sheet to sheet fastening is done with screws, button punching (crimping), or welds.

Composite Floor Deck

After installation and adequate fastening, floor deck serves several purposes. It (a) acts as a working platform, (b) stabilizes the frame, (c) serves as a concrete form for the slab, and (d) reinforces the slab to carry the design loads applied during the life of the building. Composite decks are distinguished by the presence of shear connector devices as part of the deck. These devices are designed to mechanically lock the concrete and deck together so that the concrete and the deck work together to carry subsequent floor loads. These shear connector devices can be rolled-in embossments, lugs, holes, or wires welded to the panels. The deck profile can also be used to interlock concrete and steel.

Composite deck finishes are either galvanized (zinc coated) or phosphatized/painted. Galvanized deck has a zinc coating on both the top and bottom surfaces. The phosphatized/painted deck has a bare (phosphatized) top surface that will come into contact with the concrete. This bare top surface can be expected to develop rust before the concrete is placed. The bottom side of the deck has a primer coat of paint.

Composite floor deck is normally installed so the panel ends do not overlap on the supporting beams. Shear lugs or panel profile shape often prevent a tight metal to metal fit if the panel ends overlap; the air gap caused by overlapping will prevent proper fusion with the structural steel supports when the panel end laps are shear stud welded.

Adequate end bearing of the deck must be obtained as shown on the drawings. If bearing is actually less in the field than shown on the drawings, further investigation is required.

Roof Deck

Roof deck is not designed to act compositely with other materials. Roof deck acts alone in transferring horizontal and vertical loads into the building frame. Roof deck rib openings are usually narrower than floor deck rib openings. This provides adequate support of rigid thermal insulation board.

Roof deck is typically installed to endlap approximately 2" over supports. However, it can be butted (or lapped more than 2") to solve field problems. Since designers frequently use the installed deck system as part of the horizontal bracing system (the deck as a diaphragm), any fastening substitution or change should be approved by the designer. Continuous perimeter support of the deck is necessary to limit edge deflection in the finished roof and may be required for diaphragm shear transfer.

Standard roof deck finishes are galvanized or primer painted. The standard factory applied paint for roof deck is a primer paint and is not intended for weather for extended periods of time. Field painting or touching up of abrasions and deterioration of the primer coat or other protective finishes is the responsibility of the contractor.

Cellular Deck

Cellular deck is made by attaching a bottom steel sheet to a roof deck or composite floor deck panel. Cellular deck can be used in the same manner as floor deck. Electrical, telephone, and data wires are easily run through the chase created between the deck panel and the bottom sheet.

When used as part of the electrical distribution system, the cellular deck must be installed so that the ribs line up and create a smooth cell transition at abutting ends. The joint that occurs at butting cell ends must be taped or otherwise sealed to prevent wet concrete from seeping into the cell. Cell interiors must be free of welding burrs, or other sharp intrusions, to prevent damage to wires.

When used as a roof deck, the bottom flat plate is usually left exposed in view. Care must be maintained during erection to keep good alignment and prevent damage.

Cellular deck is sometimes used with the flat plate on the top side to provide a flat working surface. Installation of the deck for this purpose requires special methods for attachment to the frame because the flat plate, now on the top, can prevent direct access to the deck material that is bearing on the structural steel. It may be advisable to treat the flat top surface to prevent slipping.

Cellular deck is always furnished galvanized or painted over galvanized.

Form Deck

Form deck can be any floor or roof deck product used as a concrete form. Connections to the frame are by the same methods used to anchor floor and roof deck. Welding washers are recommended when welding deck that is less than 20 gauge thickness.

Form deck is furnished galvanized, prime painted, or uncoated. Galvanized deck must be used for those roof deck systems where form deck is used to carry a lightweight insulating concrete fill.

R0611-10-30 Lumber Product Material Prices

Prices of forest products fluctuates widely from location to location and from season to season depending upon economic conditions. The bare prices in the unit cost sections of the book show the National Lumber material prices in effect Jan. 1 of this book year. It must be noted that lumber prices in general may change significantly during the year.

Availability of certain items depends upon geographic location and must be checked prior to firm-price bidding.

Wood, Plastics & Comp.**R0616 Sheathing****R0616-36-20 Plywood**

There are two types of plywood used in construction: interior, which is moisture-resistant but not waterproofed, and exterior, which is waterproofed. The grade of the exterior surface of the plywood sheets is designated by the first letter: A, for smooth surface with patches allowed; B, for solid surface with patches and plugs allowed; C, which may be surface plugged with knot holes up to 1" wide; and D, which is used only for interior plywood and may have knot holes up to 2-1/2" wide. "Structural grade" is specifically designed for engineered applications such as box beams. CC & DD grades have roof and floor spans marked on them.

Interior-grade plywood runs from 1/4" to 1-1/4" thick. Thicknesses 5/8" and 1" have optional tongue and groove joints which eliminate the need for gluing the edges. Underlayment 19/32" and over may be referred to as sub-floor.

Prices of plywood can fluctuate widely due to geographic and economic conditions.

Typical uses for various plywood grades are as follows:

AA-AD Interior — cupboards, shelving, paneling, furniture

BB Plyform — concrete form plywood

CDX — wall and roof sheathing

Structural — box beams, girders, stressed skin panels

AA-AC Exterior — fences, signs, siding, soffits, etc.

Underlayment — base for resilient floor coverings

Overlaid HDO — high density for concrete forms & highway signs

Overlaid MDO — medium density for painting, siding, soffits & signs

303 Siding — exterior siding, textured, striated, embossed, etc.

Thermal & Moist. Protec.**R0731 Shingles & Shakes****R0731-26-20 Roof Slate**

18 and 20" are standard lengths, and slate usually comes in standard widths. For standard 3/16" thickness use 1-1/2" copper nails. Allow for 3% breakage.

Thermal & Moist. Protec.**R0751 Built-Up Bituminous Roofing****R0751-13-20 Built-Up Roofing**

Materials available in kegs of 100 lbs. each: coal tar pitch in 560 lb. kegs. Built-up roofing felts are available in a wide range of sizes, weights and characteristics. However, the most commonly used are #15 (432 S.F. per roll, 15 lbs. per square) and #30 (216 S.F. per roll, 27 lbs. per square).

Hot bitumen varies from 24 lbs. per sq. (asphalt) to 30 lbs. per sq. (coal tar), MF4@ 25%. Flood coat bitumen also varies from 60 lbs. per sq. (asphalt) to 75 lbs. per sq. (coal tar), MF4@ 25%. Expendable equipment (pumps, screeds, etc.) runs about 16% of the bitumen cost. For experienced crews this factor may be much higher.

Rigid insulation board is typically applied in two layers. The first is mechanically attached to nailable decks or spot or solid mopped to non-nailable decks; the second layer is then spot or solid mopped to the first layer. Membrane application follows the insulation, except in protected membrane roofs, where the membrane goes down first and the insulation on top, followed with ballast (stone or concrete pavers). Insulation and related labor costs are NOT included in prices for built-up roofing.

Thermal & Moist. Protec.**R0752 Modified Bituminous Membrane Roofing****R075213-30 Modified Bitumen Roofing**

The cost of modified bitumen roofing is highly dependent on the type of installation that is planned. Installation is based on the type of modifier used in the bitumen. The two most popular modifiers are atactic polypropylene (APP) and styrene butadiene styrene (SBS). The modifiers are added to heated bitumen during the manufacturing process to change its characteristics. A polyethylene, polyester or fiberglass reinforcing sheet is then sandwiched between layers of this bitumen. When completed, the result is a pre-assembled, built-up roof that has increased elasticity and weatherability. Some manufacturers include a surfacing material such as ceramic or mineral granules, metal particles or sand.

The preferred method of adhering SBS-modified bitumen roofing to the substrate is with hot-mopped asphalt (much the same as built-up roofing). This installation method requires a tar kettle/pot to heat the asphalt, as well as the labor, tools and equipment necessary to distribute and spread the hot asphalt.

The alternative method for applying APP and SBS modified bitumen is as follows. A skilled installer uses a torch to melt a small pool of bitumen on the membrane. This pool must form across the entire roll for proper adhesion. The installer must unroll the roofing at a pace slow enough to melt the bitumen, but fast enough to prevent damage to the rest of the membrane.

Modified bitumen roofing provides the advantages of both built-up and single-ply roofing. Labor costs are reduced over those of built-up roofing because only a single ply is necessary. The elasticity of single-ply roofing is attained with the reinforcing sheet and polymer modifiers. Modifieds have some self-healing characteristics and because of their multi-layer construction they offer the reliability and safety of built-up roofing.

Thermal & Moist. Protec.**R0784 Firestopping****R078413-30 Firestopping**

Firestopping is the sealing of structural, mechanical, electrical and other penetrations through fire-rated assemblies. The basic components of firestop systems are safing insulation and firestop sealant on both sides of wall penetrations and the top side of floor penetrations.

Pipe penetrations are assumed to be through concrete, grout, or joint compound and can be sleeved or unsleeved. Costs for the penetrations and sleeves are not included. An annular space of 1" is assumed. Escutcheons are not included.

Metallic pipe is assumed to be copper, aluminum, cast iron or similar metallic material. Insulated metallic pipe is assumed to be covered with a thermal insulating jacket of varying thickness and materials.

Non-metallic pipe is assumed to be PVC, CPVC, FR Polypropylene or similar plastic piping material. Intumescent firestop sealant or wrap strips are included. Collars on both sides of wall penetrations and a sheet metal plate on the underside of floor penetrations are included.

Ductwork is assumed to be sheet metal, stainless steel or similar metallic material. Duct penetrations are assumed to be through concrete, grout or joint compound. Costs for penetrations and sleeves are not included. An annular space of 1/2" is assumed.

Multi-trade openings include costs for sheet metal forms, firestop mortar, wrap strips, collars and sealants as necessary.

Structural penetrations joints are assumed to be 1/2" or less. CMU walls are assumed to be within 1-1/2" of metal deck. Drywall walls are assumed to be tight to the underside of metal decking.

Metal panel, glass or curtain wall systems include a spandrel area of 5' with mineral wool foil-faced insulation. Fasteners and stiffeners are included.

R0813-20 Steel Door Selection Guide

Standard steel doors are classified into four levels, as recommended by the Steel Door Institute in the chart below. Each of the four levels offers a range of construction models and designs, to meet architectural requirements for appearance and appearance, including full flush, seamless, and stile & rail. Recommended minimum gauge requirements are also included.

For complete standard steel door construction specifications and available sizes, refer to the Steel Door Institute Technical Data Series, ANSI A250.8-98 (SDI-100), and ANSI A250.4-94 Test Procedure and Acceptance Criteria for Physical Endurance of Steel Door and Hardware Reinforcements.

Level		Model	Construction	For Full Flush or Seamless		
				Min. Gauge	Thickness (in)	Thickness (mm)
I	Standard Duty	1	Full Flush	20	0.032	0.8
		2	Seamless			
II	Heavy Duty	1	Full Flush	18	0.042	1.0
		2	Seamless			
III	Extra Heavy Duty	1	Full Flush	16	0.053	1.3
		2	Seamless			
		3	*Stile & Rail			
IV	Maximum Duty	1	Full Flush	14	0.067	1.6
		2	Seamless			

es: rails are 16 gauge; flush panels, when specified, are 18 gauge

R0851-23-10 Steel Sash

two person crew will erect 25 S.F. or 1.3 sash unit per hour, whichever

Glazier production depends on light size.

SS, will point 30 L.F. per hour.

Allow 1 lb. special steel sash putty per 16" x 20" light.

ater will paint 90 S.F. per coat per hour.

R0851-16-10 Window Estimates

to make a complete window estimate, be sure to include the material and labor costs for each window, as well as the material and labor costs for the interior wood trim set.

Openings

R0871 Door Hardware

R087120-10 Hinges

All closer equipped doors should have ball bearing hinges. Lead lined or extremely heavy doors require special strength hinges. Usually 1-1/2 pair of

hinges are used per door up to 7'-6" high openings. Table below shows typical hinge requirements.

Use Frequency	Type Hinge Required	Type of Opening	Type of Structure
High	Heavy weight ball bearing	Entrances Toilet Rooms	Banks, Office buildings, Schools, Stores & Theaters Office buildings and Schools
Average	Standard weight ball bearing	Entrances Corridors Toilet Rooms	Dwellings Office buildings and Schools Stores
Low	Plain bearing	Interior	Dwellings

Door Thickness	Weight of Doors in Pounds per Square Foot				
	White Pine	Oak	Hollow Core	Solid Core	Hollow Metal
1-3/8"	3psf	6psf	1-1/2psf	3-1/2 — 4psf	6-1/2psf
1-3/4"	3-1/2	7	2-1/2	4-1/2 — 5-1/4	6-1/2
2-1/4"	4-1/2	9	—	5-1/2 — 6-3/4	6-1/2

Openings

R0881 Glass Glazing

R088110-10 Glazing Productivity

Some glass sizes are estimated by the "united inch" (height + width). The table below shows the number of lights glazed in an eight-hour period by the crew size indicated, for glass up to 1/4" thick. Square or nearly square lights are more economical on a S.F. basis. Long slender lights will have a

high S.F. installation cost. For insulated glass reduce production by 33%. 1/2" float glass reduce production by 50%. Production time for glazing with two glaziers per day averages: 1/4" float glass 120 S.F.; 1/2" float glass 55 S.F.; 1/2" insulated glass 95 S.F.; 3/4" insulated glass 75 S.F.

Glazing Method	United Inches per Light							
	40"	60"	80"	100"	135"	165"	200"	240"
Number of Men in Crew	1	1	1	1	2	3	3	4
Industrial sash, putty	60	45	24	15	18	—	—	—
With stops, putty bed	50	36	21	12	16	8	4	3
Wood stops, rubber	40	27	15	9	11	6	3	2
Metal stops, rubber	30	24	14	9	9	6	3	2
Structural glass	10	7	4	3	—	—	—	—
Corrugated glass	12	9	7	4	4	4	3	—
Storefronts	16	15	13	11	7	6	4	4
Skylights, putty glass	60	36	21	12	16	—	—	—
Thiokol set	15	15	11	9	9	6	3	2
Vinyl set, snap on	18	18	13	12	12	7	5	4
Maximum area per light	2.8 S.F.	6.3 S.F.	11.1 S.F.	17.4 S.F.	31.6 S.F.	47 S.F.	69 S.F.	100 S.F.

00-50 Lath, Plaster and Gypsum Board

board lath is available in 3/8" thick x 16" wide x 4' long sheets for multi-layer plaster applications. It is also available as a multi-layer or veneer plaster applications in 1/2" and 5/8" thick x 8', 10' or 12' long sheets. Fasteners are screws or blued ring nails for wood framing and screws for metal framing.

Lath is available in diamond mesh pattern with flat or self-furring flaps. Paper backing is available for applications where excessive plaster shrinkage is to be avoided. A slotted mesh ribbed lath should be used where the span between structural supports is greater than normal. Metal lath comes in 27" x 96" sheets. Diamond mesh weighs 1.75, or 3.4 pounds per square yard, slotted mesh lath weighs 2.75 or 3.4 pounds per square yard. Metal lath can be nailed, screwed or tied in place.

Accessories are available. Corner beads, flat reinforcing strips, expansion, control and expansion joints, furring brackets and channels are examples. Note that accessories are not included in plaster or stucco quantities.

Plaster is defined as a material or combination of materials that when mixed with a suitable amount of water, forms a plastic mass or paste. When applied to a surface, the paste adheres to it and subsequently hardens, setting in a rigid state the form or texture imposed during the period of setting.

Plaster is made from ground calcined gypsum. It is mixed with water and used as a base coat plaster.

Vermiculite plaster is a fire-retardant plaster covering used on steel beams, concrete slabs and other heavy construction materials. Vermiculite is a group name for certain clay minerals, hydrous silicates or aluminum, magnesium and iron that have been expanded by heat.

Perlite plaster is a plaster using perlite as an aggregate instead of sand. Perlite is a volcanic glass that has been expanded by heat.

Gauging plaster is a mix of gypsum plaster and lime putty that when applied produces a quick drying finish coat.

Veneer plaster is a one or two component gypsum plaster used as a thin finish coat over special gypsum board.

Keenes cement is a white cementitious material manufactured from gypsum that has been burned at a high temperature and ground to a fine powder. Alum is added to accelerate the set. The resulting plaster is hard and strong and accepts and maintains a high polish, hence it is used as a finishing plaster.

Stucco is a Portland cement based plaster used primarily as an exterior finish.

Plaster is used on both interior and exterior surfaces. Generally it is applied in multiple-coat systems. A three-coat system uses the terms scratch, brown and finish to identify each coat. A two-coat system uses base and finish to describe each coat. Each type of plaster and application system has attributes that are chosen by the designer to best fit the intended use.

	Gypsum Plaster Quantities for 100 S.Y.	2 Coat, 5/8" Thick		3 Coat, 3/4" Thick		
		Base	Finish	Scratch	Brown	Finish
		1:3 Mix	2:1 Mix	1:2 Mix	1:3 Mix	2:1 Mix
plaster		1,300 lb. 1.75 C.Y.		1,350 lb. 1.85 C.Y.	650 lb. 1.35 C.Y.	
and drated lime plaster			340 lb. 170 lb.			340 lb. 170 lb.
	Vermiculite or Perlite Plaster Quantities for 100 S.Y.	2 Coat, 5/8" Thick		3 Coat, 3/4" Thick		
		Base	Finish	Scratch	Brown	Finish
plaster		1,250 lb. 7.8 bags		1,450 lb. 8.0 bags	800 lb. 3.3 bags	
ite or perlite drated lime plaster			340 lb. 170 lb.			340 lb. 170 lb.
	Stucco-Three-Coat System Quantities for 100 S.Y.	On Wood Frame		On Masonry		
ement		29 bags 2.6 C.Y.		21 bags 2.0 C.Y.		
and drated lime		180 lb.		120 lb.		

R092910-10 Levels of Gypsum Drywall Finish

In the past, contract documents often used phrases such as "industry standard" and "workmanlike finish" to specify the expected quality of gypsum board wall and ceiling installations. The vagueness of these descriptions led to unacceptable work and disputes.

In order to resolve this problem, four major trade associations concerned with the manufacture, erection, finish, and decoration of gypsum board wall and ceiling systems have developed an industry-wide *Recommended Levels of Gypsum Board Finish*.

The finish of gypsum board walls and ceilings for specific final decoration is dependent on a number of factors. A primary consideration is the location of the surface and the degree of decorative treatment desired. Painted and unpainted surfaces in warehouses and other areas where appearance is normally not critical may simply require the taping of wallboard joints and 'spotting' of fastener heads. Blemish-free, smooth, monolithic surfaces often intended for painted and decorated walls and ceilings in habitated structures, ranging from single-family dwellings through monumental buildings, require additional finishing prior to the application of the final decoration.

Other factors to be considered in determining the level of finish of the gypsum board surface are (1) the type of angle of surface illumination (both natural and artificial lighting), and (2) the paint and method of application or the type and finish of wallcovering specified as the final decoration. Critical lighting conditions, gloss paints, and thin wall coverings require a higher level of gypsum board finish than do heavily textured surfaces which are subsequently painted or surfaces which are to be decorated with heavy grade wall coverings.

The following descriptions were developed jointly by the Association of the Wall and Ceiling Industries-International (AWCI), Ceiling & Interior Systems Construction Association (CISCA), Gypsum Association (GA), and Painting and Decorating Contractors of America (PDCA) as a guide.

Level 0: Used in temporary construction or wherever the final decoration has not been determined. Unfinished. No taping, finishing or corner beads are required. Also could be used where non-predecorated panels will be used in demountable-type partitions that are to be painted as a final finish.

Level 1: Frequently used in plenum areas above ceilings, in attics, in areas where the assembly would generally be concealed, or in building service corridors and other areas not normally open to public view. Some degree of sound and smoke control is provided; in some geographic areas, this level is referred to as "fire-taping," although this level of finish does not typically meet fire-resistant assembly requirements. Where a fire resistance rating is required for the gypsum board assembly, details of construction should be in accordance with reports of fire tests of assemblies that have met the requirements of the fire rating acceptable.

All joints and interior angles shall have tape embedded in joint compound. Accessories are optional at specifier discretion in corridors and other areas with pedestrian traffic. Tape and fastener heads need not be covered with joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.

Level 2: It may be specified for standard gypsum board surfaces in garages, warehouse storage, or other similar areas where surface appearance is not of primary importance.

All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife or trowel, leaving a thin coating of joint compound over all joints and interior angles. Fastener heads and accessories shall be covered with a coat of joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.

Level 3: Typically used in areas that are to receive heavy texture (spray or hand applied) finishes before final painting, or where commercial-grade (heavy duty) wall coverings are to be applied as final decoration. This level of finish should not be used where smooth painted surfaces or where lighter weight wall coverings are specified. The prepared surface shall be coated with a drywall primer prior to the application of final finishes.

All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife or trowel, leaving a thin coating of joint compound over all joints and interior angles. One additional coat of joint compound shall be applied over all joints and interior angles. Fastener heads and accessories shall be covered with two separate coats of joint compound. All joint compounds shall be smooth and free of tool marks and ridges. The prepared surface shall be covered with a drywall primer prior to the application of the final decoration.

Level 4: This level should be used where residential grade (light duty) wall coverings, flat paints, or light textures are to be applied. The prepared surface shall be coated with a drywall primer prior to the application of final finishes. Release agents for wall coverings are specifically formulated to minimize damage if coverings are subsequently removed.

The weight, texture, and sheen level of the wall covering material selected should be taken into consideration when specifying wall coverings over this level of drywall treatment. Joints and fasteners must be sufficiently concealed if the wall covering material is lightweight, contains limited pattern, has a glossy finish, or has any combination of these features. In critical lighting areas, flat paints applied over light textures tend to reduce joint photographing. Gloss, semi-gloss, and enamel paints are not recommended over this level of finish.

All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife or trowel, leaving a thin coating of joint compound over all joints and interior angles. In addition, two separate coats of joint compound shall be applied over all flat joints, one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compounds shall be smooth and free of tool marks and ridges. The prepared surface shall be covered with a drywall primer like Sheetrock® First Coat prior to the application of the final decoration.

Level 5: The highest quality finish is the most effective method to provide a uniform surface and minimize the possibility of joint photographing and of fasteners showing through the final decoration. This level of finish is required where gloss, semi-gloss, or enamel is specified; when flat joints are specified over an untextured surface or where critical lighting conditions occur. The prepared surface shall be coated with a drywall primer prior to the application of final decoration.

All joints and interior angles shall have tape embedded in joint compound and be immediately wiped with a joint knife or trowel, leaving a thin coating of joint compound over all joints and interior angles. Two separate coats of joint compound shall be applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound.

A thin skim coat of joint compound shall be trowel applied to the entire surface. Excess compound is immediately troweled off, leaving a film or coating of compound completely covering the paper. As an alternative to a skim coat, a material manufactured especially for this purpose may be applied such as Sheetrock® Tuff-Hide primer surfacer. The surface must be smooth and free of tool marks and ridges. The prepared surface shall be covered with a drywall primer prior to the application of the final decoration.

9613-10 Terrazzo Floor

below lists quantities required for 100 S.F. of 5/8" terrazzo
either bonded or not bonded.

Description	Bonded to Concrete 1-1/8" Bed, 1:4 Mix	Not Bonded 2-1/8" Bed and 1/4" Sand
Portland cement, 94 lb. Bag	6 bags	8 bags
Gravel and	10 C.F.	20 C.F.
Gravel strips, 4' squares	50 L.F.	50 L.F.
Gravel fill, 50 lb. Bag	12 bags	12 bags
5 lb. tarred felt		1 C.S.F.
Mesh x 2 #14 galvanized		1 C.S.F.
	0.77 days	0.87 days

3" panels require 1.00 L.F. divider strip per S.F.

3" panels require 0.67 L.F. divider strip per S.F.

4" panels require 0.50 L.F. divider strip per S.F.

5" panels require 0.40 L.F. divider strip per S.F.

6" panels require 0.33 L.F. divider strip per S.F.

9723-10 Wall Covering

below lists the quantities required for 100 S.F. of wall covering.

Description	Medium-Priced Paper	Expensive Paper
Paper	1.6 dbl. rolls	1.6 dbl. rolls
Glue	0.25 gallon	0.25 gallon
Primer	0.6 gallon	0.6 gallon
Scoring	0.3 hour	0.3 hour
Removal	1.2 hours	1.5 hours

new papers now come in double rolls only;
remove old paper, allow 1.3 hours per 100 S.F.

Finishes

R0991 Painting

R099100-10 Painting Estimating Techniques

Proper estimating methodology is needed to obtain an accurate painting estimate. There is no known reliable shortcut or square foot method. The following steps should be followed:

- List all surfaces to be painted, with an accurate quantity (area) of each. Items having similar surface condition, finish, application method and accessibility may be grouped together.
- List all the tasks required for each surface to be painted, including surface preparation, masking, and protection of adjacent surfaces. Surface preparation may include minor repairs, washing, sanding and puttying.
- Select the proper Means line for each task. Review and consider all adjustments to labor and materials for type of paint and location of work. Apply the height adjustment carefully. For instance, when applying the adjustment for work over 8' high to a wall that is 12' high, apply the adjustment only to the area between 8' and 12' high, and not to the entire wall.

When applying more than one percent (%) adjustment, apply each to the base cost of the data, rather than applying one percentage adjustment on top of the other.

When estimating the cost of painting walls and ceilings remember to add the brushwork for all cut-ins at inside corners and around windows and doors as a LF measure. One linear foot of cut-in with brush equals one square foot of painting.

All items for spray painting include the labor for roll-back.

Deduct for openings greater than 100 SF, or openings that extend from floor to ceiling and are greater than 5' wide. Do not deduct small openings.

The cost of brushes, rollers, ladders and spray equipment are considered to be part of a painting contractor's overhead, and should not be added to the estimate. The cost of rented equipment such as scaffolding and swing staging should be added to the estimate.

R099100-20 Painting

Item	Coat	One Gallon Covers			In 8 Hours a Laborer Covers			Labor-Hours per 100 S.F.		
		Brush	Roller	Spray	Brush	Roller	Spray	Brush	Roller	Spray
Paint wood siding	prime	250 S.F.	225 S.F.	290 S.F.	1150 S.F.	1300 S.F.	2275 S.F.	.695	.615	.381
	others	270	250	290	1300	1625	2600	.615	.492	.361
Paint exterior trim	prime	400	—	—	650	—	—	1.230	—	—
	1st	475	—	—	800	—	—	1.000	—	—
	2nd	520	—	—	975	—	—	.820	—	—
Paint shingle siding	prime	270	255	300	650	975	1950	1.230	.820	.416
	others	360	340	380	800	1150	2275	1.000	.695	.361
Stain shingle siding	1st	180	170	200	750	1125	2250	1.068	.711	.351
	2nd	270	250	290	900	1325	2600	.888	.603	.301
Paint brick masonry	prime	180	135	160	750	800	1800	1.066	1.000	.441
	1st	270	225	290	815	975	2275	.981	.820	.381
	2nd	340	305	360	815	1150	2925	.981	.695	.271
Paint interior plaster or drywall	prime	400	380	495	1150	2000	3250	.695	.400	.241
	others	450	425	495	1300	2300	4000	.615	.347	.201
Paint interior doors and windows	prime	400	—	—	650	—	—	1.230	—	—
	1st	425	—	—	800	—	—	1.000	—	—
	2nd	450	—	—	975	—	—	.820	—	—

Special Construction

R1311 Swimming Pools

R131113-20 Swimming Pools

Pool prices given per square foot of surface area include pool structure, filter and chlorination equipment, pumps, related piping, ladders/steps, maintenance kit, skimmer and vacuum system. Decks and electrical service to equipment are not included.

Residential in-ground pool construction can be divided into two categories: vinyl lined and gunitite. Vinyl lined pool walls are constructed of different materials including wood, concrete, plastic or metal. The bottom is often graded with sand over which the vinyl liner is installed. Vermiculite or soil cement bottoms may be substituted for an added cost.

Gunitite pool construction is used both in residential and municipal installations. These structures are steel reinforced for strength and finished with a white cement limestone plaster.

Municipal pools will have a higher cost because plumbing codes require more expensive materials, chlorination equipment and higher filtration.

Municipal pools greater than 1,800 S.F. require gutter systems to control waves. This gutter may be formed into the concrete wall. Often a vinyl/stainless steel gutter or gutter/wall system is specified, which will raise the pool cost.

Competition pools usually require tile bottoms and sides with contrasting lane striping, which will also raise the pool cost.

33-13-10 Air Supported Structures

supported structures are made from fabrics that can be classified into two groups: temporary and permanent. Temporary fabrics include nylon, polyethylene, vinyl film, and vinyl coated dacron. These have a life span that range from five to fifteen plus years. The cost per square foot of a fabric shell, tension cables, primary and back-up inflation equipment and doors. The lower cost structures are used for construction site bulk storage and pond covers. The more expensive are used for retail structures and warehouses.

Permanent fabrics are teflon coated fiberglass. The life of this structure is many years. The high cost limits its application to architectural structures which call for a clear span covered area, such as stadiums, convention centers. Both temporary and permanent structures are available in translucent fabrics which eliminates the need for daytime lighting. The covered vary from 10,000 S.F. to any area up to 1000 foot in any length. Height restrictions range from a maximum of 1/2 of

width to a minimum of 1/6 of the width. Erection of even the largest of the temporary structures requires no more than a week.

Centrifugal fans provide the inflation necessary to support the structure during application of live loads. Airlocks are usually used at large entrances to prevent loss of static pressure. Some manufacturers employ propeller fans which generate sufficient airflow (30,000 CFM) to eliminate the need for airlocks. These fans may also be automatically controlled to resist high wind conditions, regulate humidity (air changes), and provide cooling and heat.

Insulation can be provided with the addition of a second or even third interior liner, creating a dead air space with an "R" value of four to nine. Some structures allow for the liner to be collapsed into the outer shell to enable the internal heat to melt accumulated snow. For cooling or air conditioning, the exterior face of the liner can be aluminized to reflect the sun's heat.

33-13-90 Seismic Bracing

When referred to as anti-sway bracing, this support system is required in earthquake areas. The individual components must be assembled to

make a required system.

C-Clamp 3/8" rod	2 ea.
Rod, continuous thread 3/8"	10 L.F.
Field, weld 1"	2 ea.

Additionally, height factors must be taken into account. Add the following percentages to labor for elevated installations:

15' to 20' high	10%
21' to 25' high	20%
26' to 30' high	30%
31' to 35' high	40%
36' to 40' high	50%
41' to 50' high	60%

Special Construction

R1334 Fabricated Engineered Structures**33-19-10 Pre-Engineered Steel Buildings**

Pre-engineered buildings are manufactured by many companies and normally erected by specialized dealers throughout the U.S. The four basic types are: Rigid frame, truss type, Post and Beam and the Sloped Beam type. Most popular is the low pitch of 1" in 12". The minimum economical area of a pre-engineered building is about 3000 S.F. of floor area. Bay sizes are usually 20' to 30' and can go as high as 30' with heavier girts and purlins. Eave heights are usually 2' to 24' with 18' to 20' most typical.

Prices shown in the Unit Price section are bare costs for the building and do not include floors, foundations, anchor bolts, interior utilities. Costs assume at least three bays of 24' each, a 1" in 12" pitch, and they are based on 30 psf roof load and 20 psf wind load

(wind load is a function of wind speed, building height, and terrain characteristics; this should be determined by a Registered Structural Engineer) and no unusual requirements. Costs include the structural frame, 26 ga. non-insulated colored corrugated or ribbed roofing and siding panels, fasteners, closures, trim and flashing but no allowance for insulation, doors, windows, skylights, gutters or downspouts. Very large projects would generally cost less for materials than the prices shown. For roof panel substitutions and wall panel substitutions, see appropriate Unit Price sections.

Conditions at the site, weather, shape and size of the building, and labor availability will affect the erection cost of the building.

33-23-30 Dome Structures

The four types are Lamella, Schwedler, Arch and Geodesic. For economy, rise should be about 15 to 20% of diameter. Most dome diameters are in the 200' to 300' range. Lamella domes weigh about 1 S.F. of floor area less than Schwedler domes. Schwedler dome weight approaches .046 times the diameter. Domes below 125' weigh .07 times diameter and the cost per ton of steel is higher. R123-20 for estimating weight.

Small domes are of sawn lumber, larger ones are laminated. In general, triaxial and triangular cost about the same; radial domes cost less. Radial domes are economical in the 60' to 70' diameter range. The economical range of all types is 80' to 200' diameters. Diameters can

run over 400'. All costs are quoted above the foundation. Prices include 2" decking and a tension tie ring in place.

Plywood — Stock prefabricated geodesic domes are available with diameters from 24' to 60'.

Fiberglass — Aluminum framed translucent sandwich panels with spans from 5' to 45' are commercially available.

Aluminum — Stressed skin aluminum panels form geodesic domes with spans ranging from 82' to 232'. An aluminum space truss, triangulated or nontriangulated, with aluminum or clear acrylic closure panels can be used for clear spans of 40' to 415'.

Conveying Equipment

R1420 Elevators

R142000-10 Freight Elevators

Capacities run from 2,000 lbs. to over 100,000 lbs. with 3,000 lbs. to 10,000 lbs. most common. Travel speeds are generally lower and control less

intricate than on passenger elevators. Costs in the Unit Price section are for hydraulic and geared elevators.

R142000-20 Elevator Selective Costs See R142000-40 for cost development.

A. Base Unit	Passenger		Freight		Hospital	
	Hydraulic	Electric	Hydraulic	Electric	Hydraulic	Electric
Capacity	1,500 lb.	2,000 lb.	2,000 lb.	4,000 lb.	4,000 lb.	4,000 lb.
Speed	100 F.P.M.	200 F.P.M.	100 F.P.M.	200 F.P.M.	100 F.P.M.	200 F.P.M.
#Stops/Travel Ft.	2/12	4/40	2/20	4/40	2/20	4/40
Push Button Oper.	Yes	Yes	Yes	Yes	Yes	Yes
Telephone Box & Wire	"	"	"	"	"	"
Emergency Lighting	"	"	No	No	"	"
Cab	Plastic Lam. Walls	Plastic Lam. Walls	Painted Steel	Painted Steel	Plastic Lam. Walls	Plastic Lam. Walls
Cove Lighting	Yes	Yes	No	No	Yes	Yes
Floor	V.C.T.	V.C.T.	Wood w/Safety Treads	Wood w/Safety Treads	V.C.T.	V.C.T.
Doors, & Speedside Slide	Yes	Yes	Yes	Yes	Yes	Yes
Gates, Manual	No	No	No	No	No	No
Signals, Lighted Buttons	Car and Hall	Car and Hall	Car and Hall	Car and Hall	Car and Hall	Car and Hall
O.H. Geared Machine	N.A.	Yes	N.A.	Yes	N.A.	Yes
Variable Voltage Contr.	"	"	N.A.	"	"	"
Emergency Alarm	Yes	"	Yes	"	Yes	"
Class "A" Loading	N.A.	N.A.	"	"	N.A.	N.A.

R142000-30 Passenger Elevators

Electric elevators are used generally but hydraulic elevators can be used for lifts up to 70' and where large capacities are required. Hydraulic speeds are limited to 200 F.P.M. but cars are self leveling at the stops. On low rises, hydraulic installation runs about 15% less than standard electric types but on higher rises this installation cost advantage is reduced. Maintenance of hydraulic elevators is about the same as electric type but underground portion is not included in the maintenance contract.

In electric elevators there are several control systems available, the choice of which will be based upon elevator use, size, speed and cost criteria. The two types of drives are geared for low speeds and gearless for 450 F.P.M. over.

The tables on the preceding pages illustrate typical installed costs of the various types of elevators available.

R142000-40 Elevator Cost Development

To price a new car or truck from the factory, you must start with the manufacturer's basic model, then add or exchange optional equipment and features. The same is true for pricing elevators.

Requirement: One-passenger elevator, five-story hydraulic, 2,500 lb. capacity, 12' floor to floor, speed 150 F.P.M., emergency power switching and maintenance contract.

Example:

Description	Adjustment
A. Base Elevator: Hydraulic Passenger, 1500 lb. Capacity, 100 fpm, 2 Stops, Standard Finish	1 Ea.
B. Capacity Adjustment (2,500 lb.)	1 Ea.
C. Excess Travel Adjustment: 48' Total Travel (4 x 12') minus 12' Base Unit Travel =	36 V.L.F.
D. Stops Adjustment: 5 Total Stops minus 2 Stops (Base Unit) =	3 Stops
E. Speed Adjustment (150 F.P.M.)	1 Ea.
F. Options:	
1. Intercom Service	1 Ea.
2. Emergency Power Switching, Automatic	1 Ea.
3. Stainless Steel Entrance Doors	5 Ea.
4. Maintenance Contract (12 Months)	1 Ea.
5. Position Indicator for main floor level (none indicated in Base Unit)	1 Ea.

Conveying Equipment**R1431 Escalators****R1431 10-10 Escalators**

Escalators can be used for buildings where 600 or more people are to be carried to the second floor or beyond. Freight cannot be carried on escalators, and at least one elevator must be available for this function.

Carrying capacity is 5,000 to 8,000 people per hour. Power requirement is 2 to 3 KW per hour and incline angle is 30°.

Conveying Equipment**R1432 Moving Walks****R1432 10-20 Moving Ramps and Walks**

This is a specialized form of conveyor 3' to 6' wide with capacities of 100 to 18,000 persons per hour. Maximum speed is 140 F.P.M. and normal incline 10° to 15°.

Local codes will determine the maximum angle. Outdoor units would require additional weather protection.

Plumbing**R2201 Operation & Maintenance of Plumbing****R2201 02-20 Labor Adjustment**

Adjustment Factors are provided for Divisions 21, 22, and 23 to assist the estimator account for the various complexities and special conditions of any particular project. While a single percentage has been given on each line of Division 22 01 02.20, it should be understood that these are just suggested midpoints of ranges of values commonly used by mechanical estimators. They may be increased or decreased depending on the severity of the special conditions.

The group for "existing occupied buildings", has been the subject of requests for explanation. Actually there are two stages to this group: buildings that are "existing" and "finished" but unoccupied, and those that also are occupied. Buildings that are "finished" may result in higher labor costs due to the

workers having to be more careful not to damage finished walls, ceilings, floors, etc. and may necessitate special protective coverings and barriers. Also corridor bends and doorways may not accommodate long pieces of pipe or larger pieces of equipment. Work above an already hung ceiling can be very time consuming. The addition of occupants may force the work to be done on premium time (nights and/or weekends), eliminate the possible use of some preferred tools such as pneumatic drivers, powder charged drivers etc. The estimator should evaluate the access to the work area and just how the work is going to be accomplished to arrive at an increase in labor costs over "normal" new construction productivity.

R2201 05-10 Demolition (Selective vs. Removal for Replacement)

Demolition can be divided into two basic categories.

The first type of demolition involves the removal of material with no concern for its replacement. The labor-hours to estimate this work are found under "Demolition" in the Fire Protection, Plumbing and HVAC Division. It is selective in that individual items or all the material installed as a system, or trade grouping such as plumbing or heating systems are removed. This may be accomplished by the easiest way possible, such as using torch cutting, or sledge hammer as well as simple unbolting.

The second type of demolition is the removal of some item for repair or replacement. This removal may involve careful draining, opening of unions,

disconnecting and tagging of electrical connections, capping of pipes/ducts to prevent entry of debris or leakage of the material contained as well as transport of the item away from its in-place location to a truck/dumpster. An approximation of the time required to accomplish this type of demolition is to use half of the time indicated as necessary to install a new unit. For example; installation of a new pump might be listed as requiring 6 labor-hours so if we had to estimate the removal of the old pump we would allow an additional 3 hours for a total of 9 hours. That is, the complete replacement of a defective pump with a new pump would be estimated to take 9 labor-hours.

Plumbing

R2211 Facility Water Distribution

R221113-50 Pipe Material Considerations

1. Malleable fittings should be used for gas service.
2. Malleable fittings are used where there are stresses/strains due to expansion and vibration.
3. Cast fittings may be broken as an aid to disassembling of heating lines frozen by long use, temperature and minerals.
4. Cast iron pipe is extensively used for underground and submerged service.
5. Type M (light wall) copper tubing is available in hard temper only and is used for nonpressure and less severe applications than K and L.
6. Type L (medium wall) copper tubing, available hard or soft for interior service.
7. Type K (heavy wall) copper tubing, available in hard or soft temper for use where conditions are severe. For underground and interior services.
8. Hard drawn tubing requires fewer hangers or supports but should not be bent. Silver brazed fittings are recommended, however soft solder normally used.
9. Type DMV (very light wall) copper tubing designed for drainage, waste and vent plus other non-critical pressure services.

Domestic/Imported Pipe and Fittings Cost

The prices shown in this publication for steel/cast iron pipe and steel, cast iron, malleable iron fittings are based on domestic production sold at the normal trade discounts. The above listed items of foreign manufacture may be available at prices of 1/3 to 1/2 those shown. Some imported items after minor machining or finishing operations are being sold as domestic to further complicate the system.

Caution: Most pipe prices in this book also include a coupling and pipe hangers which for the larger sizes can add significantly to the per foot cost and should be taken into account when comparing "book cost" with quoted supplier's cost.

Plumbing

R2240 Plumbing Fixtures

R224000-40 Plumbing Fixture Installation Time

Item	Rough-In	Set	Total Hours	Item	Rough-In	Set	Total Hours
Bathtub	5	5	10	Shower head only	2	1	3
Bathtub and shower, cast iron	6	6	12	Shower drain	3	1	4
Fire hose reel and cabinet	4	2	6	Shower stall, slate		15	15
Floor drain to 4 inch diameter	3	1	4	Slop sink	5	3	8
Grease trap, single, cast iron	5	3	8	Test 6 fixtures			14
Kitchen gas range		4	4	Urinal, wall	6	2	8
Kitchen sink, single	4	4	8	Urinal, pedestal or floor	6	4	10
Kitchen sink, double	6	6	12	Water closet and tank	4	3	7
Laundry tubs	4	2	6	Water closet and tank, wall hung	5	3	8
Lavatory wall hung	5	3	8	Water heater, 45 gals. gas, automatic	5	2	7
Lavatory pedestal	5	3	8	Water heaters, 65 gals. gas, automatic	5	2	7
Shower and stall	6	4	10	Water heaters, electric, plumbing only	4	2	6

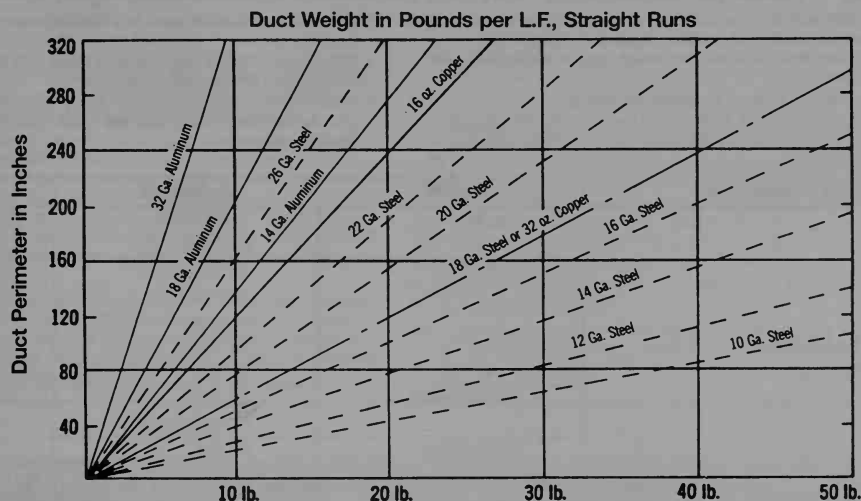
Fixture prices in front of book are based on the cost per fixture set in place. The rough-in cost, which must be added for each fixture, includes carrier, if required, some supply, waste and vent pipe connecting fittings and stops. The lengths of rough-in pipe are nominal runs which would connect

to the larger runs and stacks. The supply runs and DWV runs and stacks must be accounted for in separate entries. In the eastern half of the United States it is common for the plumber to carry these to a point 5' outside the building.

R224000-50 Water Cooler Application

Type of Service	Requirement
Office, School or Hospital	12 persons per gallon per hour
Office, Lobby or Department Store	4 or 5 gallons per hour per fountain
Light manufacturing	7 persons per gallon per hour
Heavy manufacturing	5 persons per gallon per hour
Hot heavy manufacturing	4 persons per gallon per hour
Hotel	.08 gallons per hour per room
Theatre	1 gallon per hour per 100 seats

3300-20 Ductwork



to be above for fittings; 90° elbow is 3 L.F.; 45° elbow is 2.5 L.F.; 90° reducing elbow is 5 L.F. For bracing and waste, add 20% to aluminum and copper, 15% to steel.

Heating, Ventilating & A.C. R2334 HVAC Fans

3300-10 Recommended Ventilation Air Changes

Table below lists range of time in minutes per change for various types of facilities.

Semi-enclosed Halls	2-10	Dance Halls	2-10	Laundries	1-3
Restrooms	2-10	Dining Rooms	3-10	Markets	2-10
Kitchens	2-3	Dry Cleaners	1-5	Offices	2-10
Garages	3-10	Factories	2-5	Pool Rooms	2-5
Assembly Rooms	2-5	Garages	2-10	Recreation Rooms	2-10
Club Rooms	2-5	Generator Rooms	2-5	Sales Rooms	2-10
Locker Rooms	1-5	Gymnasiums	2-10	Theaters	2-8
Swimming Pools	2-10	Kitchens-Hospitals	2-5	Toilets	2-5
Churches	5-10	Kitchens-Restaurant	1-3	Transformer Rooms	1-5

Minutes required for changes = Volume of room in cubic feet ÷ Minutes per change.

Heating, Ventilating & A.C. R2350 Central Heating Equipment

3300-35 Heating (42° degrees latitude)

$$\text{Approximate S.F. radiation} = \frac{\text{S.F. sash}}{2} + \frac{\text{S.F. wall + roof} - \text{sash}}{20} + \frac{\text{C.F. building}}{200}$$

Heating, Ventilating & A.C. R2350 Central Heating Equipment

R235000-50 Factor for Determining Heat Loss for Various Types of Buildings

General: While the most accurate estimates of heating requirements would naturally be based on detailed information about the building being considered, it is possible to arrive at a reasonable approximation using the following procedure:

1. Calculate the cubic volume of the room or building.
2. Select the appropriate factor from Table 1 below. Note that the factors apply only to inside temperatures listed in the first column and to 0° F outside temperature.

3. If the building has had north and west exposures, multiply the heat factor by 1.1.
4. If the outside design temperature is other than 0° F, multiply the factor from Table 1 by the factor from Table 2.
5. Multiply the cubic volume by the factor selected from Table 1. This will give the estimated BTUH heat loss which must be made up to maintain inside temperature.

Table 1 — Building Type	Conditions	Qualifications	Loss Factor*
Factories & Industrial Plants General Office Areas at 70° F	One Story	Skylight in Roof	6.2
		No Skylight in Roof	5.7
	Multiple Story	Two Story	4.6
		Three Story	4.3
		Four Story	4.1
		Five Story	3.9
		Six Story	3.6
	All Walls Exposed	Flat Roof	6.9
		Heated Space Above	5.2
	One Long Warm Common Wall	Flat Roof	6.3
		Heated Space Above	4.7
Warehouses at 60° F	All Walls Exposed	Flat Roof	5.8
		Heated Space Above	4.1
		Skylights in Roof	5.5
	One Long Warm Common Wall	No Skylight in Roof	5.1
		Heated Space Above	4.0
		Skylight in Roof	5.0
	Warm Common Walls on Both Long Sides	No Skylight in Roof	4.9
		Heated Space Above	3.4
		Skylight in Roof	4.7
		No Skylight in Roof	4.4
		Heated Space Above	3.0

*Note: This table tends to be conservative particularly for new buildings designed for minimum energy consumption.

Table 2 — Outside Design Temperature Correction Factor (for Degrees Fahrenheit)									
Outside Design Temperature	50	40	30	20	10	0	-10	-20	-30
Correction Factor	.29	.43	.57	.72	.86	1.00	1.14	1.28	1.43

Heating, Ventilating & A.C. R2356 Solar Energy Heating Equipment**R2356-60 Solar Heating (Space and Hot Water)**

Collectors should face as close to due South as possible, however, variations up to 20 degrees on either side of true South are acceptable. Local conditions and collector type may influence the choice between east or west orientation. Obviously they should be located so they are not shaded from the south. Incline collectors at a slope of latitude minus 5 degrees for most hot water and latitude plus 15 degrees for space heating.

Flat collectors consist of a number of components as follows: Insulation to reduce heat loss through the bottom and sides of the collector. The frame which contains all the components in this assembly is usually galvanized steel and prevents dust, wind and water from coming in contact with the absorber plate. The cover plate usually consists of one or more panes of a variety of glass or plastic and reduces the reradiation by creating a vacuum space which traps the heat between the cover and the absorber.

The absorber plate must have a good thermal bond with the fluid passages. The absorber plate is usually metallic and treated with a surface coating which improves absorptivity. Black or dark paints or selective coatings are used for this purpose, and the design of this passage and plate combination determines a solar system's effectiveness.

Heat transfer fluid passage tubes are attached above and below or integral with an absorber plate for the purpose of transferring thermal energy from the absorber plate to a heat transfer medium. The heat exchanger is a device for transferring thermal energy from one fluid to another.

Piping and storage tanks should be well insulated to minimize heat losses.

Size domestic water heating storage tanks to hold 20 gallons of water per user, minimum, plus 10 gallons per dishwasher or washing machine. For domestic water heating an optimum collector size is approximately 3/4 square foot of area per gallon of water storage. For space heating of residences and small commercial applications the collector is commonly sized between 30% and 50% of the internal floor area. For space heating of large commercial applications, collector areas less than 30% of the internal floor area can still provide significant heat reductions.

A supplementary heat source is recommended for Northern states for December through February.

The solar energy transmission per square foot of collector surface varies greatly with the material used. Initial cost, heat transmittance and useful life are obviously interrelated.

Heating, Ventilating & A.C. R2360 Central Cooling Equipment**R2360-00 Air Conditioning Requirements**

BTU per hour per S.F. of floor area and S.F. per ton of air conditioning.

Type of Building	BTU/Hr per S.F.	S.F. per Ton	Type of Building	BTU/Hr per S.F.	S.F. per Ton	Type of Building	BTU/Hr per S.F.	S.F. per Ton
Bedrooms, Individual	26	450	Dormitory, Rooms	40	300	Libraries	50	240
Corridors	22	550	Corridors	30	400	Low Rise Office, Exterior	38	320
Theaters & Theaters	40	300/18*	Dress Shops	43	280	Interior	33	360
Stores	50	240	Drug Stores	80	150	Medical Centers	28	425
Factories	48	250	Factories	40	300	Motels	28	425
Warehouses	133	90	High Rise Office—Ext. Rms.	46	263	Office (small suite)	43	280
Restaurants	66	180	Interior Rooms	37	325	Post Office, Individual Office	42	285
Alleys	68	175	Hospitals, Core	43	280	Central Area	46	260
Churches	36	330/20*	Perimeter	46	260	Residences	20	600
Hotel Lounges	68	175	Hotel, Guest Rooms	44	275	Restaurants	60	200
Computer Rooms	141	85	Corridors	30	400	Schools & Colleges	46	260
Industrial Offices	52	230	Public Spaces	55	220	Shoe Stores	55	220
Industrial Stores, Basement	34	350	Industrial Plants, Offices	38	320	Shop'g. Ctrs., Supermarkets	34	350
1st Floor	40	300	General Offices	34	350	Retail Stores	48	250
Upper Floor	30	400	Plant Areas	40	300	Specialty	60	200

BTU per ton

1000 BTU = 1 ton of air conditioning

Electrical

R2605 Common Work Results for Electrical

R260519-92 Minimum Copper and Aluminum Wire Size Allowed for Various Types of Insulation

Minimum Wire Sizes									
Amperes	Copper		Aluminum		Amperes	Copper		Aluminum	
	THW THWN or XHHW	THHN XHHW *	THW XHHW	THHN XHHW *		THW THWN or XHHW	THHN XHHW *	THW XHHW	THHN XHHW *
15A	#14	#14	#12	#12	195	3/0	2/0	250kcmil	4/0
20	#12	#12	#10	#10	200	3/0	3/0	250kcmil	4/0
25	#10	#10	#10	#10	205	4/0	3/0	250kcmil	4/0
30	#10	#10	#8	#8	225	4/0	3/0	300kcmil	250kcmil
40	#8	#8	#8	#8	230	4/0	4/0	300kcmil	250kcmil
45	#8	#8	#6	#8	250	250kcmil	4/0	350kcmil	300kcmil
50	#8	#8	#6	#6	255	250kcmil	4/0	400kcmil	300kcmil
55	#6	#8	#4	#6	260	300kcmil	4/0	400kcmil	350kcmil
60	#6	#6	#4	#6	270	300kcmil	250kcmil	400kcmil	350kcmil
65	#6	#6	#4	#4	280	300kcmil	250kcmil	500kcmil	350kcmil
75	#4	#6	#3	#4	285	300kcmil	250kcmil	500kcmil	400kcmil
85	#4	#4	#2	#3	290	350kcmil	250kcmil	500kcmil	400kcmil
90	#3	#4	#2	#2	305	350kcmil	300kcmil	500kcmil	400kcmil
95	#3	#4	#1	#2	310	350kcmil	300kcmil	500kcmil	500kcmil
100	#3	#3	#1	#2	320	400kcmil	300kcmil	600kcmil	500kcmil
110	#2	#3	1/0	#1	335	400kcmil	350kcmil	600kcmil	500kcmil
115	#2	#2	1/0	#1	340	500kcmil	350kcmil	600kcmil	500kcmil
120	#1	#2	1/0	1/0	350	500kcmil	350kcmil	700kcmil	500kcmil
130	#1	#2	2/0	1/0	375	500kcmil	400kcmil	700kcmil	600kcmil
135	1/0	#1	2/0	1/0	380	500kcmil	400kcmil	750kcmil	600kcmil
150	1/0	#1	3/0	2/0	385	600kcmil	500kcmil	750kcmil	600kcmil
155	2/0	1/0	3/0	3/0	420	600kcmil	500kcmil		700kcmil
170	2/0	1/0	4/0	3/0	430		500kcmil		750kcmil
175	2/0	2/0	4/0	3/0	435		600kcmil		750kcmil
180	3/0	2/0	4/0	4/0	475		600kcmil		

*Dry Locations Only

Notes:

1. Size #14 to 4/0 is in AWG units (American Wire Gauge).
2. Size 250 to 750 is in kcmil units (Thousand Circular Mils).
3. Use next higher ampere value if exact value is not listed in table.
4. For loads that operate continuously increase ampere value by 25% to obtain proper wire size.
5. Refer to Table R260519-91 for the maximum circuit length for the various size wires.
6. Table R260519-92 has been written for estimating purpose only, based on ambient temperature of 30°C (86° F); for ambient temperature other than 30°C (86° F), ampacity correction factors will be applied.

6033-22 Conductors in Conduit

Table 6033-22 lists maximum number of conductors for various sized conduit using THW, TW or THWN insulations.

Conduit Size																												
		1/2"			3/4"			1"			1-1/4"			1-1/2"			2"			2-1/2"			3"		3-1/2"		4"	
		TW	THW	THWN	TW	THW	THWN	TW	THW	THWN	TW	THW	THWN	TW	THW	THWN	TW	THW	THWN	TW	THW	THWN	THW	THWN	THW	THWN	THW	THWN
oppe Wire Size	9	6	13	15	10	24	25	16	39	44	29	69	60	40	94	99	65	154	142	93	143		192					
	7	4	10	12	8	18	19	13	29	35	24	51	47	32	70	78	53	114	111	76	164	117	157					
	5	4	6	9	6	11	15	11	18	26	19	32	36	26	44	60	43	73	85	61	104	95	160	127		163		
	2	1	3	4	3	5	7	5	9	12	10	16	17	13	22	28	22	36	40	32	51	49	79	66	106	85	136	
		1	1		2	4		4	6		7	11		10	15		16	26		23	37	36	57	48	76	62	98	
		1	1		1	2		3	4		5	7		7	9		12	16		17	22	27	35	36	47	47	60	
		1	1		1	1		2	3		4	6		6	8		10	13		15	19	23	29	31	39	40	51	
		1	1		1	1		2	3		4	5		5	7		9	11		13	16	20	25	27	33	34	43	
					1	1		1	1		3	3		4	5		6	8		9	12	14	18	19	25	25	32	
					1	1		1	1		2	3		3	4		5	7		8	10	12	15	16	21	21	27	
					1	1		1	1		1	2		3	3		5	6		7	8	10	13	14	17	18	22	
					1	1		1	1		1	1		2	3		4	5		6	7	9	11	12	14	15	18	
kc						1		1	1		1	1		1	2		3	4		5	6	7	9	10	12	13	15	
								1	1		1	1		1	1		2	3		4	4	6	7	8	10	10	12	
								1	1		1	1		1	1		2	3		3	4	5	6	7	8	9	11	
									1		1	1		1	1		1	2		3	3	4	5	6	7	8	9	
											1	1		1	1		1	1		2	3	4	5	5	6	7	8	
											1	1		1	1		1	1		1	2	3	4	4	5	6	7	
												1		1	1		1	1		1	1	3	3	4	4	5	5	
													1	1	1		1	1		1	1	2	3	3	4	4	5	
														1	1		1	1		1	1	2	3	3	4	4	5	
														1	1		1	1		1	1	2	2	3	3	4	4	
																	1	1										

R312316-40 Excavating

The selection of equipment used for structural excavation and bulk excavation or for grading is determined by the following factors.

1. Quantity of material
2. Type of material
3. Depth or height of cut
4. Length of haul
5. Condition of haul road
6. Accessibility of site
7. Moisture content and dewatering requirements
8. Availability of excavating and hauling equipment

Some additional costs must be allowed for hand trimming the sides and bottom of concrete pours and other excavation below the general excavation.

Number of B.C.Y. per truck = 1.5 C.Y. bucket x 8 passes = 12 loose C.Y.

$$= 12 \times \frac{100}{118} = 10.2 \text{ B.C.Y. per truck}$$

Truck Haul Cycle:

Load truck, 8 passes	=	4 minutes
Haul distance, 1 mile	=	9 minutes
Dump time	=	2 minutes
Return, 1 mile	=	7 minutes
Spot under machine	=	1 minute
23 minute cycle		

Add the mobilization and demobilization costs to the total excavation costs. When equipment is rented for more than three days, there is often no mobilization charge by the equipment dealer. On larger jobs outside of urban areas, scrapers can move earth economically provided a dump site or fill area and adequate haul roads are available. Excavation within sheeting bracing or cofferdam bracing is usually done with a clamshell and production

When planning excavation and fill, the following should also be considered:

1. Swell factor
2. Compaction factor
3. Moisture content
4. Density requirements

A typical example for scheduling and estimating the cost of excavation of 15' deep basement on a dry site when the material must be hauled off the site is outlined below.

Assumptions:

1. Swell factor, 18%
2. No mobilization or demobilization
3. Allowance included for idle time and moving on job
4. No dewatering, sheeting, or bracing
5. No truck spotter or hand trimming

Fleet Haul Production per day in B.C.Y.

$$4 \text{ trucks} \times \frac{50 \text{ min. hour}}{23 \text{ min. haul cycle}} \times 8 \text{ hrs.} \times 10.2 \text{ B.C.Y.}$$

$$= 4 \times 2.2 \times 8 \times 10.2 = 718 \text{ B.C.Y./day}$$

is low, since the clamshell may have to be guided by hand between the bracing. When excavating or filling an area enclosed with a wellpoint system add 10% to 15% to the cost to allow for restricted access. When estimating earth excavation quantities for structures, allow work space outside the building footprint for construction of the foundation and a slope of 1:1 on sheeting is used.

below lists THEORETICAL hourly production in C.Y./hr. bank for some typical excavation equipment. Figures assume 50 minute % job efficiency, 100% operator efficiency, 90° swing and

properly sized hauling units, which must be modified for adverse digging and loading conditions. Actual production costs in the front of the book average about 50% of the theoretical values listed here.

Equipment	Soil Type	B.C.Y. Weight	% Swell	1 C.Y.	1-1/2 C.Y.	2 C.Y.	2-1/2 C.Y.	3 C.Y.	3-1/2 C.Y.	4 C.Y.
Hydraulic Excavator "Backhoe" 5' Deep Cut	Moist loam, sandy clay	3400 lb.	40%	165	195	200	275	330	385	440
	Sand and gravel	3100	18	140	170	225	240	285	330	380
	Common earth	2800	30	150	180	230	250	300	350	400
	Clay, hard, dense	3000	33	120	140	190	200	240	260	320
Power Shovel Common Cut (Ft.)	Moist loam, sandy clay	3400	40	170 (6.0)	245 (7.0)	295 (7.8)	335 (8.4)	385 (8.8)	435 (9.1)	475 (9.4)
	Sand and gravel	3100	18	165 (6.0)	225 (7.0)	275 (7.8)	325 (8.4)	375 (8.8)	420 (9.1)	460 (9.4)
	Common earth	2800	30	145 (7.8)	200 (9.2)	250 (10.2)	295 (11.2)	335 (12.1)	375 (13.0)	425 (13.8)
	Clay, hard, dense	3000	33	120 (9.0)	175 (10.7)	220 (12.2)	255 (13.3)	300 (14.2)	335 (15.1)	375 (16.0)
Drag Line Common Cut (Ft.)	Moist loam, sandy clay	3400	40	130 (6.6)	180 (7.4)	220 (8.0)	250 (8.5)	290 (9.0)	325 (9.5)	385 (10.0)
	Sand and gravel	3100	18	130 (6.6)	175 (7.4)	210 (8.0)	245 (8.5)	280 (9.0)	315 (9.5)	375 (10.0)
	Common earth	2800	30	110 (8.0)	160 (9.0)	190 (9.9)	220 (10.5)	250 (11.0)	280 (11.5)	310 (12.0)
	Clay, hard, dense	3000	33	90 (9.3)	130 (10.7)	160 (11.8)	190 (12.3)	225 (12.8)	250 (13.3)	280 (12.0)
Loading Tractors				Wheel Loaders				Track Loaders		
				3 C.Y.	4 C.Y.	6 C.Y.	8 C.Y.	2-1/4 C.Y.	3 C.Y.	4 C.Y.
	Moist loam, sandy clay	3400	40	260	340	510	690	135	180	250
	Sand and gravel	3100	18	245	320	480	650	130	170	235
	Common earth	2800	30	230	300	460	620	120	155	220
	Clay, hard, dense	3000	33	200	270	415	560	110	145	200
	Rock, well-blasted	4000	50	180	245	380	520	100	130	180

Earthwork

R3123 Excavation & Fill

R312319-90 Wellpoints

A single stage wellpoint system is usually limited to dewatering an average 15' depth below normal ground water level. Multi-stage systems are employed for greater depth with the pumping equipment installed only at the lowest header level. Ejectors with unlimited lift capacity can be economical when two or more stages of wellpoints can be replaced or when horizontal clearance is restricted, such as in deep trenches or tunneling projects, and where low water flows are expected. Wellpoints are usually spaced on 2-1/2' to 10' centers along a header pipe. Wellpoint spacing, header size, and pump size are all determined by the expected flow as dictated by soil conditions.

In almost all soils encountered in wellpoint dewatering, the wellpoints may be jetted into place. Cemented soils and stiff clays may require sand wicks about 12" in diameter around each wellpoint to increase efficiency and eliminate weeping into the excavation. These sand wicks require 1/2 to 3 C.Y. of washed filter sand and are installed by using a 12" diameter steel casing and hole puncher jetted into the ground 2' deeper than the wellpoint. Rock may require predrilled holes.

Labor required for the complete installation and removal of a single stage wellpoint system is in the range of 3/4 to 2 labor-hours per linear foot of header, depending upon jetting conditions, wellpoint spacing, etc.

Continuous pumping is necessary except in some free draining soil where temporary flooding is permissible (as in trenches which are backfilled at each day's work). Good practice requires provision of a stand-by pump during the continuous pumping operation.

Systems for continuous trenching below the water table should be installed three to four times the length of expected daily progress to ensure uninterrupted digging, and header pipe size should not be changed during the job.

For pervious free draining soils, deep wells in place of wellpoints may be economical because of lower installation and maintenance costs. Daily production ranges between two to three wells per day, for 25' to 40' depths to one well per day for depths over 50'.

Detailed analysis and estimating for any dewatering problem is available at no cost from wellpoint manufacturers. Major firms will quote "sufficient equipment" quotes or their affiliates offer lump sum proposals to cover complete dewatering responsibility.

Description for 200' System with 8" Header		Quantities
Equipment & Material	Wellpoints 25' long, 2" diameter @ 5' O.C.	40 Each
	Header pipe, 8" diameter	200 L.F.
	Discharge pipe, 8" diameter	100 L.F.
	8" valves	3 Each
	Combination jetting & wellpoint pump (standby)	1 Each
	Wellpoint pump, 8" diameter	1 Each
	Transportation to and from site	1 Day
	Fuel for 30 days x 60 gal./day	1800 Gallons
	Lubricants for 30 days x 16 lbs./day	480 Lbs.
	Sand for points	40 C.Y.
Labor	Technician to supervise installation	1 Week
	Labor for installation and removal of system	300 Labor-hours
	4 Operators straight time 40 hrs./wk. for 4.33 wks.	693 Hrs.
	4 Operators overtime 2 hrs./wk. for 4.33 wks.	35 Hrs.

R312323-30 Compacting Backfill

Compaction of fill in embankments, around structures, in trenches, and under slabs is important to control settlement. Factors affecting compaction are:

1. Soil gradation
2. Moisture content
3. Equipment used
4. Depth of fill per lift
5. Density required

Production Rate:

$$\frac{1.75' \text{ plate width} \times 50 \text{ EPM} \times 50 \text{ min./hr.} \times .67' \text{ lift}}{27 \text{ C.F. per C.Y.}} = 108.5 \text{ C.Y./hr.}$$

Production Rate for 4 Passes:

$$\frac{108.5 \text{ C.Y.}}{4 \text{ passes}} = 27.125 \text{ C.Y./hr.} \times 8 \text{ hrs.} = 217 \text{ C.Y./day}$$

Example:

Compact granular fill around a building foundation using a 21" wide x 24" vibratory plate in 8" lifts. Operator moves at 50 F.P.M. working a 50 min hour to develop 95% Modified Proctor Density with 4 passes.

R3141 16-40 Wood Sheet Piling

Wood sheet piling may be used for depths to 20' where there is no ground water. If moderate ground water is encountered Tongue & Groove

sheeting will help to keep it out. When considerable ground water is present, steel sheeting must be used.

For estimating purposes on trench excavation, sizes are as follows:

Depth	Sheeting	Wales	Braces	B.F. per S.F.
To 8'	3 x 12's	6 x 8's, 2 line	6 x 8's, @ 10'	4.0 @ 8'
8' x 12'	3 x 12's	10 x 10's, 2 line	10 x 10's, @ 9'	5.0 average
12' to 20'	3 x 12's	12 x 12's, 3 line	12 x 12's, @ 8'	7.0 average

Sheet piling to be toed in at least 2' depending upon soil conditions. A five foot section may be driven with an air compressor and sheeting driver can drive and brace sheet piling at 8' deep, 360 SF/day at 12' deep, and 320 SF/day at 16' deep.

For normal soils, piling can be pulled in 1/3 the time to install. Pulling difficulty increases with the time in the ground. Production can be increased by high pressure jetting.

R3141 16-45 Steel Sheet Piling

Sheet piling weights are 22 to 38#/S.F. of wall surface with 27#/S.F. average for all sizes and sizes. (Weights of piles themselves are from 30.7#/L.F. to 34.7#/L.F. but they are 15" to 21" wide.) Lightweight sections 12" to 28" wide in 3/4" to 12 ga. thick are also available for shallow excavations. Piles may be driven two at a time with an impact or vibratory hammer (use care not to pull) hung from a crane without leads. A reasonable estimate of life of steel sheet piling is 10 uses with up to 125 uses possible if a vibratory hammer is used. Used piling costs from 50% to 80% of new piling depending on location and market conditions. Sheet piling and H piles

can be rented for about 30% of the delivered mill price for the first month and 5% per month thereafter. Allow 1 labor-hour per pile for cleaning and trimming after driving. These costs increase with depth and hydrostatic head. Vibratory drivers are faster in wet granular soils and are excellent for pile extraction. Pulling difficulty increases with the time in the ground and may cost more than driving. It is often economical to abandon the sheet piling, especially if it can be used as the outer wall form. Allow about 1/3 additional length or more for toeing into ground. Add bracing, waler and strut costs. Waler costs can equal the cost per ton of sheeting.

R3145 13-90 Vibroflotation and Vibro Replacement Soil Compaction

Vibroflotation is a proprietary system of compacting sandy soils in place to increase relative density to about 70%. Typical bearing capacities attained are 10,000 psf for saturated sand and 12,000 psf for dry sand. Usual range is 10,000 to 8000 psf capacity. Costs in the front of the book are for a typical lot of compacted cylinder 6' to 10' in diameter.

The process consists of radial displacement of the soil by vibration. The created hole is then backfilled in stages with coarse granular fill which is thoroughly compacted and displaced into the surrounding soil in the form of a column.

Vibroreplacement is a proprietary system of improving cohesive soils in place to increase bearing capacity. Most silts and clays above or below the water table can be strengthened by installation of stone columns.

The total project cost would depend on the number and depth of the compacted cylinders. The installing company guarantees relative soil density of the sand cylinders after compaction and the bearing capacity of the soil after the replacement process. Detailed estimating information is available from the installer at no cost.

Earthwork

R3163 Drilled Caissons

R316326-60 Caissons

The three principal types of caissons are:

(1) **Belled Caissons**, which except for shallow depths and poor soil conditions, are generally recommended. They provide more bearing than shaft area. Because of its conical shape, no horizontal reinforcement of the bell is required.

(2) **Straight Shaft Caissons** are used where relatively light loads are to be supported by caissons that rest on high value bearing strata. While the shaft is larger in diameter than for belled types this is more than offset by the saving in time and labor.

(3) **Keyed Caissons** are used when extremely heavy loads are to be carried. A keyed or socketed caisson transfers its load into rock by a combination of end-bearing and shear reinforcing of the shaft. The most economical shaft often consists of a steel casing, a steel wide flange core and concrete. Allowable compressive stresses of .225 f_c for concrete, 16,000 psi for the wide flange core, and 9,000 psi for the steel casing are commonly used. The usual range of shaft diameter is 18" to 84". The number of sizes specified for any one project should be limited due to the problems of casing and auger storage. When hand work is to be performed, shaft diameters should not be less than 32". When inspection of borings is required a minimum shaft diameter of 30" is recommended. Concrete caissons are intended to be poured against earth excavation so permanent forms which add to cost should not be used if the excavation is clean and the earth sufficiently impervious to prevent excessive loss of concrete.

Soil Conditions for Belling

Good	Requires Handwork	Not Recommended
Clay	Hard Shale	Silt
Sandy Clay	Limestone	Sand
Silty Clay	Sandstone	Gravel
Clayey Silt	Weathered Mica	Igneous Rock
Hard-pan		
Soft Shale		
Decomposed Rock		

Exterior Improvements

R3292 Turf & Grasses

R329219-50 Seeding

The type of grass is determined by light, shade and moisture content of soil plus intended use. Fertilizer should be disked 4" before seeding. For steep slopes disk five tons of mulch and lay two tons of hay or straw on surface per acre after seeding. Surface mulch can be staked, lightly disked or tar emulsion sprayed. Material for mulch can be wood chips, peat moss, partially

rotted hay or straw, wood fibers and sprayed emulsions. Hemp seed hay with fertilizer are also available. For spring seeding, watering is necessary. Late fall seeding may have to be reseeded in the spring. Hydraulic seed power mulching, and aerial seeding can be used on large areas.

R3311-13-80

Piping Designations

There are several systems currently in use to describe pipe and fittings. The following paragraphs will help to identify and clarify classifications of piping systems used for water distribution.

Pipe may be classified by schedule. Piping schedules include 5S, 10S, 10, 30, standard, 40, 60, Extra Strong, 80, 100, 120, 140, 160 and Double Extra Strong. These schedules are dependent upon the pipe wall thickness. The wall thickness of a particular schedule may vary with pipe size.

Iron pipe for water distribution is classified by Pressure Classes with classes 150, 200, 250, 300 and 350. These classes are actually the rated working pressure of the pipe in pounds per square inch (psi). The pipe in these pressure classes is designed to withstand the rated water pressure plus a surge allowance of 100 psi.

The American Water Works Association (AWWA) provides standards for types of **plastic pipe**. C-900 is the specification for polyvinyl chloride (PVC) pipe used for water distribution in sizes ranging from 4" through 36". C-11 is the specification for polyethylene (PE) pressure pipe, tubing and pipe used for water distribution in sizes ranging from 1/2" through 3". C-105 is the specification for PVC piping sizes 14" and greater.

PVC pressure-rated pipe is identified using the standard dimensional ratio (SDR) method. This method is defined by the American Society for Testing and Materials (ASTM) Standard D 2241. This pipe is available in SDR numbers 64, 41, 32.5, 26, 21, 17, and 13.5. Pipe with an SDR of 64 will have the thinnest wall while pipe with an SDR of 13.5 will have the thickest wall. When the pressure rating (PR) of a pipe is given in psi, it is based on a line supplying water at 73 degrees F.

The National Sanitation Foundation (NSF) seal of approval is applied to products that can be used with potable water. These products have been tested to ANSI/NSF Standard 14.

Valves and strainers are classified by American National Standards Institute (ANSI) Classes. These Classes are 125, 150, 200, 250, 300, 400, 600, 900, 1500 and 2500. Within each class there is an operating pressure range dependent upon temperature. Design parameters should be compared to the appropriate material dependent, pressure-temperature rating chart for accurate valve selection.

Transportation

R3472

Railway Construction

R3472-216-10

Single Track R.R. Siding

The components for a single track RR siding in the Unit Price section include the components shown in the table below.

Description of Component	Qty. per L.F. of Track	Unit
Ballast 1-1/2" crushed stone	.667	C.Y.
6" x 8-6" Treated timber ties, 22" O.C.	.545	Ea.
Tie pins, 2 per tie	1.091	Ea.
Track ball	2.000	L.F.
Spikes 6", 4 per tie	2.182	Ea.
Spigot bars w/ bolts, lock washers & nuts, @ 33' O.C.	.061	Pair
Crew 14 @ 57 L.F./Day	.018	Day

R3472-216-20

Single Track, Steel Ties, Concrete Bed

The components for a R.R. siding with steel ties and a concrete bed in the Unit Price section include the components shown in the table below.

Description of Component	Qty. per L.F. of Track	Unit
Concrete bed, 9' wide, 10" thick	.278	C.Y.
Ties 6x16 x 6'-6" long, @ 30" O.C.	.400	Ea.
Tie pins, 4 per tie	1.600	Ea.
Track ball	2.000	L.F.
Tie pins bolts, 1", 8 per tie	3.200	Ea.
Spigot bars w/bolts, lock washers & nuts, @ 33' O.C.	.061	Pair
Crew 14 @ 22 L.F./Day	.045	Day

Change Orders

Change Order Considerations

A change order is a written document, usually prepared by the design professional, and signed by the owner, the architect/engineer, and the contractor. A change order states the agreement of the parties to: an addition, deletion, or revision in the work; an adjustment in the contract sum, if any; or an adjustment in the contract time, if any. Change orders, or "extras" in the construction process occur after execution of the construction contract and impact architects/engineers, contractors, and owners.

Change orders that are properly recognized and managed can ensure orderly, professional, and profitable progress for all who are involved in the project. There are many causes for change orders and change order requests. In all cases, change orders or change order requests should be addressed promptly and in a precise and prescribed manner. The following paragraphs include information regarding change order pricing and procedures.

The Causes of Change Orders

Reasons for issuing change orders include:

- Unforeseen field conditions that require a change in the work
- Correction of design discrepancies, errors, or omissions in the contract documents
- Owner-requested changes, either by design criteria, scope of work, or project objectives
- Completion date changes for reasons unrelated to the construction process
- Changes in building code interpretations, or other public authority requirements that require a change in the work
- Changes in availability of existing or new materials and products

Procedures

Properly written contract documents must include the correct change order procedures for all parties—owners, design professionals and contractors—to follow in order to avoid costly delays and litigation.

Being "in the right" is not always a sufficient or acceptable defense. The contract provisions requiring notification and documentation must be adhered to within a defined or reasonable time frame.

The appropriate method of handling change orders is by a written proposal and acceptance by all parties involved. Prior to starting work on a project, all parties should identify their authorized agents who may sign and accept change orders, as well as any limits placed on their authority.

Time may be a critical factor when the need for a change arises. For such cases, the contractor might be directed to proceed on a "time and materials" basis, rather than wait for all paperwork to be processed—a delay that could impede progress. In this situation, the contractor must still follow the prescribed change order procedures including, but not limited to, notification and documentation.

All forms used for change orders should be dated and signed by the proper authority. Lack of documentation can be very costly, especially if legal judgments are to be made, and if certain field personnel are no longer available. For time and material change orders, the contractor should keep accurate daily records of all labor and material allocated to the change.

Owners or awarding authorities who do considerable and continual building construction (such as the federal government) realize the inevitability of change orders for numerous reasons, both predictable and unpredictable. As a result, the federal government, the American Institute of Architects (AIA), the Engineers Joint Contract Documents Committee (EJCDC) and other contractor, legal, and technical organizations have developed standards and procedures to be followed by all parties to achieve contract continuance and timely completion, while being financially fair to all concerned.

In addition to the change order standards put forth by industry associations, there are also many books available on the subject.

Pricing Change Orders

When pricing change orders, regardless of the cause, the most significant factor is when the change occurs. The need for a change may be perceived in the field or requested by the architect/engineer *before* any of the actual installation has begun, or may evolve or appear *during* construction when the item of work in question is partially installed. In the latter cases, the original sequence of construction is disrupted, along with all contiguous and supporting systems. Change orders cause the greatest impact when they occur *after* the installation has been completed and must be uncovered, or even replaced. Post-completion changes may be caused by necessary design changes, product failure, or changes in the owner's requirements that are not discovered until the building or the systems begin to function.

Specified procedures of notification and record keeping must be adhered to and enforced, regardless of the stage of construction: *before*, *during*, or *after* installation. Some bidding documents anticipate change orders by requiring that unit prices including overhead and profit percentages—for additional as well as deductible changes—be listed. Generally these unit prices do not fully take into account the ripple effect, or impact on other trades, should be used for general guidance only.

When pricing change orders, it is important to classify the time frame in which the change occurs. There are two basic time frames for change orders: *pre-installation change orders*, which occur before the start of construction, and *post-installation change orders*, which involve reworking after the original installation. Change orders that occur *between* these stages may be priced according to the extent of work completed using a combination of techniques developed for pricing *pre-* and *post-installation* changes.

The following factors are the basis for a checklist to use when preparing a change order estimate.

Factors To Consider When Pricing Change Orders

When a estimator begins to prepare a change order, the following questions should be asked to determine their impact on the total price.

General

Does the change order work pre-installation or post-installation?

Change order work costs vary according to how much of the installation has been completed. Once workers have the project completed in their minds, even though they have not started, it can be difficult to estimate.

Consequently they may spend more than the normal amount of time understanding the change. Also, modifications to work in place, such as trimming or refitting, usually take more time than was initially estimated. The greater the amount of work in place, the more reluctant workers are to change it. Psychologically they may resent the change and as a result the rework takes longer than normal. Post-installation change order estimates must include demolition of existing work as required to accomplish the change. If the work is performed at a later time, additional obstacles, such as building finishes, may be present which must be protected. Regardless of whether the change

occurs pre-installation or post-installation, attempt to isolate the identifiable factors and price them separately. For example, add shipping costs that may be required pre-installation or any demolition required post-installation. Then analyze the potential impact on productivity of psychological and/or learning curve factors and adjust the output rates accordingly. One approach is to break down the typical workday into segments and quantify the impact on each segment. The following chart may be useful as a guide:

Activities (Productivity) Expressed as Percentages of a Workday			
Task	Means Mechanical Cost Data (for New Construction)	Pre-Installation Change Orders	Post-Installation Change Orders
1. Study plans	3%	6%	6%
2. Material procurement	3%	3%	3%
3. Receiving and storing	3%	3%	3%
4. Mobilization	5%	5%	5%
5. Material movement	5%	5%	8%
6. Layout and marking	8%	10%	12%
7. Actual installation	64%	59%	54%
8. Clean-up	3%	3%	3%
9. Breaks—non-productive	6%	6%	6%
Total	100%	100%	100%

Change Order Installation Efficiency

The labor-hours expressed (for new construction) are based on average actual on time, using an efficiency level of approximately 60%. For change order situations, adjustments to this efficiency level should reflect the daily labor-hour allocation for that particular circumstance.

Since the specific percentages expressed in the above chart do not apply to a particular project situation, then those percentage points should be reallocated to the appropriate task(s). Example: Using data for new construction, assume there is no new material being utilized. The percentages for Tasks 2 and 3 would therefore be reallocated to other tasks. The time required for Tasks 2 and 3 can now be applied to actual installation, we can add the time allocated for *Material Procurement* and *Receiving and Storing* to the *Actual Installation* time for new construction, thereby increasing the Actual Installation percentage.

This chart shows that, due to reduced productivity, labor costs will be higher than those for new construction by 5%–15% for pre-installation change orders and by 15%–25% for post-installation change orders. Each job and change order is unique and must be examined individually. Many factors, covered elsewhere in this section, can each have a significant impact on productivity and change order costs. All such factors should be considered in every case.

- *Will the change substantially delay the original completion date?*

A significant change in the project may cause the original completion date to be extended. The extended schedule may subject the contractor to new wage rates dictated by relevant labor contracts. Project supervision and other project overhead must also be extended beyond the original completion date. The schedule extension may also put installation into a new weather season. For example, underground piping scheduled for October installation was delayed until January. As a result, frost penetrated the trench area, thereby changing the degree of difficulty of the task. Changes and delays may have a ripple effect throughout the project. This effect must be analyzed and negotiated with the owner.

- *What is the net effect of a deduct change order?*

In most cases, change orders resulting in a deduction or credit reflect only bare costs. The contractor may retain the overhead and profit based on the original bid.

Materials

- *Will you have to pay more or less for the new material, required by the change order, than you paid for the original purchase?*

The same material prices or discounts will usually apply to materials purchased for change orders as new construction. In some instances, however, the contractor may forfeit the advantages of competitive pricing for change orders. Consider the following example:

A contractor purchased over \$20,000 worth of fan coil units for an installation, and obtained the maximum discount. Some time later it was determined the project required an additional matching unit. The contractor has to purchase this unit from the original supplier to ensure a match. The supplier at this time may not discount the unit because of the small quantity, and the fact that he is no longer in a competitive situation. The impact of quantity on purchase can add between 0% and 25% to material prices and/or subcontractor quotes.

- *If materials have been ordered or delivered to the job site, will they be subject to a cancellation charge or restocking fee?*

Check with the supplier to determine if ordered materials are subject to a cancellation charge. Delivered materials not used as result of a change order may be subject to a restocking fee if returned to the supplier. Common restocking charges run between 20% and 40%. Also, delivery charges to return the goods to the supplier must be added.

Labor

- *How efficient is the existing crew at the actual installation?*

Is the same crew that performed the initial work going to do the change order? Possibly the change consists of the installation of a unit identical to one already installed; therefore, the change should take less time. Be sure to consider this potential productivity increase and modify the productivity rates accordingly.

- *If the crew size is increased, what impact will that have on supervision requirements?*

Under most bargaining agreements or management practices, there is a point at which a working foreman is replaced by a nonworking foreman. This replacement increases project overhead by adding a nonproductive worker. If additional workers are added to accelerate the project or to perform changes while maintaining the schedule, be sure to add additional supervision time if warranted. Calculate the hours involved and the additional cost directly if possible.

- *What are the other impacts of increased crew size?*

The larger the crew, the greater the potential for productivity to decrease. Some of the factors that cause this productivity loss are: overcrowding (producing restrictive conditions in the working space), and possibly a shortage of any special tools and equipment required. Such factors affect not only the crew working on the elements directly involved in the change order, but other crews whose movement may also be hampered.

As the crew increases, check its basic composition for changes by the addition or deletion of apprentices or nonworking foreman, and quantify the potential effect of equipment shortages or other logistical factors.

- *As new crews, unfamiliar with the project, are brought onto the site, how long will it take them to become oriented to the new requirements?*

The orientation time for a new crew to become 100% effective varies with the size and type of project. Orientation is easiest at existing, very restrictive renovation sites. The type of work also affects orientation time. When all elements of the work are exposed, such as concrete or masonry work, orientation is decreased. When the work is concealed or less visible, such as existing electrical systems, orientation takes longer. Usually orientation can be accomplished one day or less. Costs for added orientation should be itemized and added to the total estimated cost.

- *How much actual production can be gained by working overtime?*

Short term overtime can be used effectively to accomplish more work in a day. However, as overtime is scheduled to run beyond several weeks, studies have shown marked decreases in output. The following chart shows the effect of long term overtime on worker efficiency. If the anticipated change requires extended overtime to keep the job on schedule, these factors can be used as a guide to predict the impact on time and cost. Add project overhead, particularly supervision, that may also be incurred.

Days per Week	Hours per Day	Production Efficiency					Payroll Cost Factors	
		1 Week	2 Weeks	3 Weeks	4 Weeks	Average 4 Weeks	@ 1-1/2 Times	@ 2 Times
5	8	100%	100%	100%	100%	100%	100%	100%
	9	100	100	95	90	96.25	105.6	111.1
	10	100	95	90	85	91.25	110.0	120.0
	11	95	90	75	65	81.25	113.6	127.3
	12	90	85	70	60	76.25	116.7	133.3
6	8	100	100	95	90	96.25	108.3	116.7
	9	100	95	90	85	92.50	113.0	125.9
	10	95	90	85	80	87.50	116.7	133.3
	11	95	85	70	65	78.75	119.7	139.4
	12	90	80	65	60	73.75	122.2	144.4
7	8	100	95	85	75	88.75	114.3	128.6
	9	95	90	80	70	83.75	118.3	136.5
	10	90	85	75	65	78.75	121.4	142.9
	11	85	80	65	60	72.50	124.0	148.1
	12	85	75	60	55	68.75	126.2	152.4

Effect of Overtime

Under many labor agreements, Sundays and holidays are paid a higher premium than the normal overtime rate.

Use of long-term overtime is counterproductive on almost any construction job; that is, the longer the period of overtime, the lower the actual production rate. Numerous studies have been conducted, and they have resulted in slightly different numbers, all reaching the same conclusion. The figure above tabulates the effects of overtime on production efficiency.

As illustrated, there can be a difference between the *actual* payroll cost per hour and the *effective* cost per hour for overtime work. This is due to the reduced production efficiency with the increase in weekly hours worked. This difference between actual and effective cost results in overtime work over a prolonged period. Short-term overtime work does not result in as great a reduction in efficiency and, in such cases, the effective cost may not vary significantly from the actual payroll cost. As the total hours per week are increased on a regular basis, more time is lost due to fatigue, lowered morale, and an increased accident rate.

For example, assume a project where workers are working 6 days a week, 10 hours per day. From the figure above (based on productivity data), the average effective productive hours over a 4-week period are:

$$0.875 \times 60 = 52.5$$

Equipment

When equipment is required to complete a change order:

Change orders may require extending the rental period of equipment already on the job site, or the addition of special equipment to the fleet in to accomplish the change work. In either case, the additional rental charges and operator labor charges must be added.

Summary

The preceding considerations and others you deem appropriate should be analyzed and applied to a change order estimate. The impact of each should be quantified and listed on the estimate to form an audit trail.

Depending upon the locale and day of week, overtime hours may be paid at time and a half or double time. For time and a half, the overall (average) *actual* payroll cost (including regular and overtime hours) is determined as follows:

$$\frac{40 \text{ reg. hrs.} + (20 \text{ overtime hrs.} \times 1.5)}{60 \text{ hrs.}} = 1.167$$

Based on 60 hours, the payroll cost per hour will be 116.7% of the normal rate at 40 hours per week. However, because the effective production (efficiency) for 60 hours is reduced to the equivalent of 52.5 hours, the effective cost of overtime is calculated as follows:

For time and a half:

$$\frac{40 \text{ reg. hrs.} + (20 \text{ overtime hrs.} \times 1.5)}{52.5 \text{ hrs.}} = 1.33$$

Installed cost will be 133% of the normal rate (for labor).

Thus, when figuring overtime, the actual cost per unit of work will be higher than the apparent overtime payroll dollar increase, due to the reduced productivity of the longer workweek. These efficiency calculations are true only for those cost factors determined by hours worked. Costs that are applied weekly or monthly, such as equipment rentals, will not be similarly affected.

Change orders that are properly identified, documented, and managed help to ensure the orderly, professional and profitable progress of the work. They also minimize potential claims or disputes at the end of the project.

Estimating Tips

The cost figures in this Square Foot Cost section were derived from approximately 11,000 projects contained in the RSMeans database of completed construction projects. They include the contractor's overhead and profit, but do not generally include architectural fees or land costs. The figures have been adjusted to January of the current year. New projects are added to our files each year, and outdated projects are discarded. For this reason, certain costs may not show a uniform annual progression. In no case are all subdivisions of a project listed.

These projects were located throughout the U.S. and reflect a tremendous variation in square foot (S.F.) and cubic foot (C.F.) costs. This is due to differences, not only in labor and material costs, but also in individual owners' requirements. For instance, a bank in a large city would have different features than one in a rural area. This is true of all the different types of buildings analyzed. Therefore, caution should be exercised when using the Square Foot costs. For example, for court houses, costs in the database are local court house costs and will not apply to the larger, more elaborate federal court houses. As a general rule, the projects in the 1/4 column do not include any work or equipment, while projects in the 3/4 column include both equipment and site work. The median figures do not generally include site work.

- None of the figures "go with" any others. All individual cost items were computed and tabulated separately. Thus, the sum of the median figures for Plumbing, HVAC and Electrical will not normally total up to the total Mechanical and Electrical costs arrived at by separate analysis and tabulation of the projects.
- Each building was analyzed as to total and component costs and percentages. The figures were arranged in ascending order with the results tabulated as shown. The 1/4 column shows that 25% of the projects had lower costs and 75% had higher. The 3/4 column shows that 75% of the projects had lower costs and 25% had higher. The median column shows that 50% of the projects had lower costs and 50% had higher.
- There are two times when square foot costs are useful. The first is in the conceptual stage when no details are available. Then square foot costs make a useful starting point. The second is after the bids are in and the costs can be worked back into their appropriate units for information purposes. As soon as details become available in the project design, the square foot approach should be discontinued and the project priced as to its particular components. When more precision is required, or for estimating the replacement cost of specific buildings, the current edition of *RSMeans Square Foot Costs* should be used.
- In using the figures in this section, it is recommended that the median column be used for preliminary figures if no additional information is available. The median figures, when multiplied by the total city construction cost index figures (see City Cost Indexes) and then multiplied by the project size modifier at the end of this section, should present a fairly accurate base figure, which would then have to be adjusted in view of the estimator's experience, local economic conditions, code requirements, and the owner's particular requirements. There is no need to factor the percentage figures, as these should remain constant from city to city. All tabulations mentioning air conditioning had at least partial air conditioning.
- The editors of this book would greatly appreciate receiving cost figures on one or more of your recent projects, which would then be included in the averages for next year. All cost figures received will be kept confidential, except that they will be averaged with other similar projects to arrive at Square Foot cost figures for next year's book. See the last page of the book for details and the discount available for submitting one or more of your projects.

50 17 | Square Foot Costs

50 17 00 S.F. Costs			UNIT COSTS			% OF TOTAL		
		UNIT	1/4	MEDIAN	3/4	1/4	MEDIAN	3/4
01	0010	APARTMENTS Low Rise (1 to 3 story)	S.F.	69.50	87	116		
	0020	Total project cost	C.F.	6.25	8.25	10.20		
	0100	Site work	S.F.	5.95	8.10	14.30	6.05%	10.55%
	0500	Masonry		1.37	3.18	5.50	1.54%	3.67%
	1500	Finishes		7.35	10	12.50	9.05%	10.75%
	1800	Equipment		2.27	3.45	5.10	2.73%	4.03%
	2720	Plumbing		5.40	6.95	8.85	6.65%	8.95%
	2770	Heating, ventilating, air conditioning		3.45	4.25	6.25	4.20%	5.60%
	2900	Electrical		4.02	5.35	7.20	5.20%	6.65%
	3100	Total: Mechanical & Electrical		13.95	17.75	22	15.90%	18.05%
	9000	Per apartment unit, total cost	Apt.	65,000	99,000	146,000		
02	0010	APARTMENTS Mid Rise (4 to 7 story)	S.F.	92.50	111	138		
	0020	Total project costs	C.F.	7.20	9.95	13.60		
	0100	Site work	S.F.	3.69	7.30	13.15	5.25%	6.70%
	0500	Masonry		6.15	8.45	11.55	5.10%	7.25%
	1500	Finishes		11.60	15.15	19.10	10.55%	13.45%
	1800	Equipment		2.68	4.01	5.25	2.54%	3.48%
	2500	Conveying equipment		1.99	2.53	3.07	1.94%	2.27%
	2720	Plumbing		5.40	8.65	9.15	5.70%	7.20%
	2900	Electrical		6.10	8.25	10.05	6.65%	7.20%
	3100	Total: Mechanical & Electrical		19.45	24.50	29.50	18.50%	21%
	9000	Per apartment unit, total cost	Apt.	104,500	123,000	204,000		
03	0010	APARTMENTS High Rise (8 to 24 story)	S.F.	105	120	145		
	0020	Total project costs	C.F.	10.15	11.80	15.10		
	0100	Site work	S.F.	3.79	6.15	8.60	2.58%	4.84%
	0500	Masonry		6.05	11	13.70	4.74%	9.65%
	1500	Finishes		11.60	14.50	17.15	9.75%	11.80%
	1800	Equipment		3.36	4.14	5.50	2.78%	3.49%
	2500	Conveying equipment		2.38	3.61	4.91	2.23%	2.78%
	2720	Plumbing		7.70	9.10	12.65	6.80%	7.20%
	2900	Electrical		7.20	9.10	12.25	6.45%	7.65%
	3100	Total: Mechanical & Electrical		21.50	27.50	33	17.95%	22.50%
	9000	Per apartment unit, total cost	Apt.	108,500	119,500	166,000		
04	0010	AUDITORIUMS	S.F.	109	148	212		
	0020	Total project costs	C.F.	6.80	9.45	13.60		
	2720	Plumbing	S.F.	6.45	9.50	11.40	5.85%	7.20%
	2900	Electrical		8.40	12.25	20	6.80%	9.05%
	3100	Total: Mechanical & Electrical		52.50	68.50	94	24.50%	29%
	9000	Per apartment unit, total cost	Apt.	108,500	119,500	166,000		
	9500	Total: Mechanical & Electrical		23,500	26,800	28,400		
	0010	AUDITORIUMS	S.F.	109	148	212		
	0020	Total project costs	C.F.	6.80	9.45	13.60		
	2720	Plumbing	S.F.	6.45	9.50	11.40	5.85%	7.20%
	2900	Electrical		8.40	12.25	20	6.80%	9.05%
05	0010	AUTOMOTIVE SALES	S.F.	80.50	109	135		
	0020	Total project costs	C.F.	5.30	6.35	8.25		
	2720	Plumbing	S.F.	3.67	6.35	6.95	2.89%	6.05%
	2770	Heating, ventilating, air conditioning		5.65	8.65	9.35	4.61%	10%
	2900	Electrical		6.35	9.95	13.80	7.25%	8.80%
	3100	Total: Mechanical & Electrical		20.50	29	35	18.90%	20.50%
	9000	Per apartment unit, total cost	Apt.	108,500	119,500	166,000		
	9500	Total: Mechanical & Electrical		23,500	26,800	28,400		
	0010	AUTOMOTIVE SALES	S.F.	80.50	109	135		
	0020	Total project costs	C.F.	5.30	6.35	8.25		
	2720	Plumbing	S.F.	3.67	6.35	6.95	2.89%	6.05%
06	0010	BANKS	S.F.	158	197	250		
	0020	Total project costs	C.F.	11.25	15.30	20		
	0100	Site work	S.F.	18.05	27.50	40	7.85%	12.95%
	0500	Masonry		8.20	15.70	28.50	3.36%	6.95%
	1500	Finishes		14.60	21.50	26.50	5.85%	8.60%
	1800	Equipment		5.95	13.05	26.50	1%	5.55%
	2720	Plumbing		4.94	7.05	10.30	2.82%	3.90%
	2770	Heating, ventilating, air conditioning		9.40	12.55	16.70	4.86%	7.15%
	2900	Electrical		15	20	26	8.20%	10.20%
	3100	Total: Mechanical & Electrical		36	48.50	58	16.25%	19.45%
	3500	See also division 11020 & 11030 (MF2004 11 16 00 & 11 17 00)						

5017 00 S.F. Costs		UNIT	UNIT COSTS			% OF TOTAL			
			1/4	MEDIAN	3/4	1/4	MEDIAN	3/4	
00	CHURCHES	S.F.	106	135	175				13
00	Total project costs	C.F.	6.60	8.30	10.95				
10	Equipment	S.F.	1.27	3.04	6.45	.95%	2.11%	4.31%	
20	Plumbing		4.13	5.80	8.50	3.51%	4.96%	6.25%	
20	Heating, ventilating, air conditioning		9.65	12.60	17.85	7.50%	10%	12%	
20	Electrical		8.95	12.30	16.60	7.30%	8.80%	10.95%	
30	Total: Mechanical & Electrical	↓	27.50	37	49	18.30%	22%	25%	
30	See also division 11040 (MF2004 11 91 00)								
00	CLUBS, COUNTRY	S.F.	114	137	173				15
00	Total project costs	C.F.	9.20	11.20	15.45				
20	Plumbing	S.F.	6.90	10.20	23.50	5.60%	7.90%	10%	
20	Electrical		8.95	12.25	16	7%	8.95%	11%	
30	Total: Mechanical & Electrical	↓	47.50	59.50	63	19%	26.50%	29.50%	
00	CLUBS, SOCIAL Fraternal	S.F.	96	131	175				17
00	Total project costs	C.F.	5.70	8.60	10.30				
20	Plumbing	S.F.	5.70	7.10	10.75	5.60%	6.90%	8.55%	
20	Heating, ventilating, air conditioning		8.25	9.95	12.80	8.20%	9.25%	14.40%	
20	Electrical		6.85	11.25	12.90	5.95%	9.30%	10.55%	
30	Total: Mechanical & Electrical	↓	35.50	38.50	48.50	21%	23%	23.50%	
00	CLUBS, Y.M.C.A.	S.F.	119	154	194				18
00	Total project costs	C.F.	5.25	8.80	13.10				
20	Plumbing	S.F.	7.20	14.35	16.10	5.65%	7.60%	10.85%	
20	Electrical		9.35	11.40	17.05	6.25%	7.95%	9.20%	
30	Total: Mechanical & Electrical	↓	35	42	71	20.50%	21.50%	28.50%	
00	COLLEGES Classrooms & Administration	S.F.	115	156	207				19
00	Total project costs	C.F.	8.25	12.25	18.90				
10	Masonry	S.F.	8.45	16	19.55	5.65%	8.05%	10.50%	
20	Plumbing		5.85	12	22.50	5.10%	6.60%	8.95%	
20	Electrical		9.40	14.55	20	7.70%	9.75%	12%	
30	Total: Mechanical & Electrical	↓	39.50	54	72	23.50%	28%	32%	
00	COLLEGES Science, Engineering, Laboratories	S.F.	214	251	291				21
00	Total project costs	C.F.	12.30	17.95	20.50				
10	Equipment	S.F.	11.95	27	29.50	2%	6.45%	12.65%	
20	Electrical		17.70	25.50	38.50	7.10%	9.40%	12.10%	
30	Total: Mechanical & Electrical	↓	65.50	78	121	28.50%	31.50%	41%	
30	See also division 11600 (MF2004 11 53 00)								
00	COLLEGES Student Unions	S.F.	137	185	225				23
00	Total project costs	C.F.	7.65	10	12.35				
30	Total: Mechanical & Electrical	S.F.	51.50	55.50	66	23.50%	26%	29%	
00	COMMUNITY CENTERS	S.F.	113	139	189				25
00	Total project costs	C.F.	7.35	10.55	13.65				
10	Equipment	S.F.	2.73	4.51	7.35	1.48%	3.01%	5.30%	
20	Plumbing		5.35	9.35	12.75	4.85%	7%	8.95%	
20	Heating, ventilating, air conditioning		8.55	12.45	17.85	6.80%	10.35%	12.90%	
20	Electrical		9.25	12.50	17.95	7.15%	8.95%	10.45%	
30	Total: Mechanical & Electrical	↓	31.50	40	57	19.05%	24%	31%	
00	COURT HOUSES	S.F.	163	192	265				28
00	Total project costs	C.F.	12.50	14.95	18.85				
20	Plumbing	S.F.	7.75	10.80	12.25	5.95%	7.45%	8.20%	
20	Electrical		17.30	19.25	28	8.90%	10.45%	11.85%	
30	Total: Mechanical & Electrical	↓	48.50	63.50	69.50	22.50%	27.50%	30%	
00	DEPARTMENT STORES	S.F.	60	81.50	103				30
00	Total project costs	C.F.	3.23	4.18	5.70				
20	Plumbing	S.F.	1.87	2.37	3.59	1.82%	4.21%	5.90%	
20	Heating, ventilating, air conditioning		5.45	8.45	12.70	8.20%	9.10%	14.80%	

50 17 | Square Foot Costs

50 17 00 S.F. Costs			UNIT	UNIT COSTS			% OF TOTAL		
				1/4	MEDIAN	3/4	1/4	MEDIAN	3/4
30	2900	Electrical	S.F.	6.90	9.50	11.20	9.05%	12.15%	14.95%
	3100	Total: Mechanical & Electrical	↓	12.15	15.55	27	13.20%	21.50%	30%
31	0010	DORMITORIES Low Rise (1 to 3 story)	S.F.	114	158	198			
	0020	Total project costs	C.F.	6.45	10.45	15.65			
	2720	Plumbing	S.F.	6.85	9.20	11.60	8.05%	9%	9.65%
	2770	Heating, ventilating, air conditioning	↓	7.25	8.70	11.60	4.61%	8.05%	10%
	2900	Electrical		7.55	11.50	15.75	6.40%	8.65%	9.55%
	3100	Total: Mechanical & Electrical	↓	39.50	42	65.50	22%	25%	27%
	9000	Per bed, total cost	Bed	48,400	53,500	115,500			
32	0010	DORMITORIES Mid Rise (4 to 8 story)	S.F.	140	183	226			
	0020	Total project costs	C.F.	15.45	16.95	20.50			
	2900	Electrical	S.F.	14.90	16.90	23	8.20%	10.20%	11.95%
	3100	Total: Mechanical & Electrical	↓	41.50	83	84.50	25.50%	34.50%	37.50%
	9000	Per bed, total cost	Bed	20,000	45,600	263,500			
34	0010	FACTORIES	S.F.	53	79	122			
	0020	Total project costs	C.F.	3.40	5.10	8.40			
	0100	Site work	S.F.	6.05	11.05	17.50	6.95%	11.45%	17.95%
	2720	Plumbing	↓	2.86	5.30	8.80	3.73%	6.05%	8.10%
	2770	Heating, ventilating, air conditioning		5.55	8	10.80	5.25%	8.45%	11.35%
	2900	Electrical	↓	6.60	10.45	15.90	8.10%	10.50%	14.20%
	3100	Total: Mechanical & Electrical	↓	18.85	29	38	21%	28.50%	35.50%
36	0010	FIRE STATIONS	S.F.	106	145	197			
	0020	Total project costs	C.F.	6.15	8.45	11.25			
	0500	Masonry	S.F.	15.45	28	36.50	8.35%	11.30%	15.20%
	1140	Roofing	↓	3.43	9.30	10.55	1.90%	4.94%	5.15%
	1580	Painting		2.66	3.98	4.07	1.37%	1.57%	2.57%
	1800	Equipment	↓	1.31	2.51	4.63	.62%	1.63%	3.40%
	2720	Plumbing		5.90	9.40	13.30	5.85%	7.35%	9.45%
	2770	Heating, ventilating, air conditioning	↓	5.85	9.45	14.60	5.15%	7.40%	9.40%
	2900	Electrical		7.60	13.20	18	6.85%	8.60%	10.60%
	3100	Total: Mechanical & Electrical	↓	38.50	49.50	56	18.40%	23%	27%
37	0010	FRATERNITY HOUSES & Sorority Houses	S.F.	105	136	186			
	0020	Total project costs	C.F.	10.50	10.95	13.15			
	2720	Plumbing	S.F.	7.95	9.10	16.65	6.80%	8%	10.85%
	2900	Electrical	↓	6.95	15	18.40	6.60%	9.90%	10.65%
	3100	Total: Mechanical & Electrical	↓	8.55	26.50	32		15.10%	15.90%
38	0010	FUNERAL HOMES	S.F.	111	151	275			
	0020	Total project costs	C.F.	11.35	12.60	24			
	2900	Electrical	S.F.	4.91	9	9.85	3.58%	4.44%	5.95%
	3100	Total: Mechanical & Electrical	↓	17.45	25.50	35.50	12.90%	12.90%	12.90%
39	0010	GARAGES, COMMERCIAL (Service)	S.F.	63	97	134			
	0020	Total project costs	C.F.	4.14	6.10	8.90			
	1800	Equipment	S.F.	3.55	7.95	12.40	2.21%	4.62%	6.80%
	2720	Plumbing	↓	4.36	6.70	12.25	5.45%	7.85%	10.85%
	2730	Heating & ventilating		5.70	7.45	9.45	5.25%	6.85%	8.25%
	2900	Electrical	↓	5.95	9.10	13.15	7.15%	9.25%	10.85%
	3100	Total: Mechanical & Electrical	↓	13.20	25.50	37.50	12.35%	17.40%	26%
40	0010	GARAGES, MUNICIPAL (Repair)	S.F.	97.50	123	173			
	0020	Total project costs	C.F.	5.75	7.30	12.60			
	0500	Masonry	S.F.	8.65	16.95	26.50	4.03%	9.15%	12.50%
	2720	Plumbing	↓	4.14	7.95	15	3.59%	6.70%	7.90%
	2730	Heating & ventilating		7.10	10.25	19.80	6.15%	7.45%	13.55%
	2900	Electrical	↓	6.80	10.75	15.60	6.65%	8.15%	11.15%
	3100	Total: Mechanical & Electrical	↓	31.50	44	63.50	21.50%	23%	26.50%

0017 00 S.F. Costs		UNIT	UNIT COSTS			% OF TOTAL			
			1/4	MEDIAN	3/4	1/4	MEDIAN	3/4	
00	GARAGES, PARKING	S.F.	35.50	52.50	90				41
00	Total project costs	C.F.	3.38	4.59	6.70				
27	Plumbing	S.F.	1.02	1.58	2.44	1.72%	2.70%	3.85%	
29	Electrical		1.97	2.42	3.80	4.33%	5.20%	6.30%	
31	Total: Mechanical & Electrical	↓	4.04	5.60	7	7%	8.90%	11.05%	
90	Per car, total cost	Car	15,200	19,100	24,300				
00	GYMNASIUMS	S.F.	100	133	176				43
00	Total project costs	C.F.	4.99	6.75	8.30				
18	Equipment	S.F.	2.38	4.46	8.55	1.98%	3.30%	6.70%	
27	Plumbing		6.35	7.40	9.70	4.65%	6.40%	7.75%	
27	Heating, ventilating, air conditioning		6.80	10.35	21	5.15%	9.05%	11.10%	
29	Electrical		7.70	10.25	13.80	6.60%	8.30%	10.30%	
31	Total: Mechanical & Electrical	↓	28	37	44	19.60%	23.50%	28%	
35	See also division 11480 (MF2004 11 67 00)								
00	HOSPITALS	S.F.	192	240	325				46
00	Total project costs	C.F.	14.55	18.10	26				
18	Equipment	S.F.	4.87	9.35	16.15	.80%	2.53%	4.80%	
27	Plumbing		16.55	23.50	30	7.60%	9.10%	10.85%	
27	Heating, ventilating, air conditioning		24.50	31	43.50	7.80%	12.95%	16.65%	
29	Electrical		21	28.50	40.50	9.90%	11.75%	14.10%	
31	Total: Mechanical & Electrical	↓	62	86	128	28%	33.50%	37%	
90	Per bed or person, total cost	Bed	222,500	306,500	353,000				
99	See also division 11700 (MF2004 11 71 00)								
00	HOUSING For the Elderly	S.F.	94.50	120	147				48
00	Total project costs	C.F.	6.75	9.35	11.95				
01	Site work	S.F.	6.60	10.20	14.95	5.05%	7.90%	12.10%	
06	Masonry		2.88	10.75	15.70	1.30%	6.05%	11%	
18	Equipment		2.28	3.14	5	1.88%	3.23%	4.43%	
25	Conveying systems		2.30	3.09	4.18	1.78%	2.20%	2.81%	
27	Plumbing		7	8.95	11.25	8.15%	9.55%	10.50%	
27	Heating, ventilating, air conditioning		3.60	5.10	7.60	3.30%	5.60%	7.25%	
29	Electrical		7.05	9.55	12.25	7.30%	8.50%	10.25%	
31	Total: Mechanical & Electrical	↓	26	30	38.50	18.10%	22.50%	29%	
90	Per rental unit, total cost	Unit	88,000	102,500	114,500				
96	Total: Mechanical & Electrical	"	19,600	22,500	26,300				
00	HOUSING Public (Low Rise)	S.F.	79.50	110	143				50
00	Total project costs	C.F.	7.05	8.80	10.95				
01	Site work	S.F.	10.10	14.55	23.50	8.35%	11.75%	16.50%	
18	Equipment		2.16	3.52	5.35	2.26%	3.03%	4.24%	
27	Plumbing		5.70	7.55	9.55	7.15%	9.05%	11.60%	
27	Heating, ventilating, air conditioning		2.88	5.60	6.10	4.26%	6.05%	6.45%	
29	Electrical		4.80	7.15	9.90	5.10%	6.55%	8.25%	
31	Total: Mechanical & Electrical	↓	23	29.50	33	14.50%	17.55%	26.50%	
90	Per apartment, total cost	Apt.	87,000	99,000	124,500				
96	Total: Mechanical & Electrical	"	18,600	22,900	25,400				
00	ICE SKATING RINKS	S.F.	68	159	174				51
00	Total project costs	C.F.	4.99	5.10	5.90				
27	Plumbing	S.F.	2.53	4.75	4.86	3.12%	3.23%	5.65%	
29	Electrical		7.25	11.15	11.80	6.30%	10.15%	15.05%	
31	Total: Mechanical & Electrical	↓	12	17	21	18.95%	18.95%	18.95%	
00	JAILS	S.F.	206	267	345				52
00	Total project costs	C.F.	18.60	26	30.50				
18	Equipment	S.F.	8.05	24	40.50	2.80%	6.05%	10.35%	
27	Plumbing		19.90	26.50	35	7%	8.90%	13.35%	
27	Heating, ventilating, air conditioning		18.65	25	48	7.50%	9.45%	17.75%	
29	Electrical		21.50	29.50	36.50	8.80%	11.65%	14.95%	

50 17 | Square Foot Costs

50 17 00 S.F. Costs			UNIT	UNIT COSTS			% OF TOTAL		
				1/4	MEDIAN	3/4	1/4	MEDIAN	3/4
52	3100	Total: Mechanical & Electrical	S.F.	56	103	122	27.50%	30%	34%
53	0010	LIBRARIES	S.F.	132	168	218			
	0020	Total project costs	C.F.	8.95	11.20	14.30			
	0500	Masonry	S.F.	10.45	18.05	30.50	5.80%	7.60%	11.50%
	1800	Equipment		1.78	4.80	7.25	.34%	1.50%	4.07%
	2720	Plumbing		4.82	6.85	9.50	3.38%	4.60%	5.70%
	2770	Heating, ventilating, air conditioning		10.65	18.05	22	7.80%	10.95%	12.80%
	2900	Electrical		13.40	17.35	22.50	8.35%	10.30%	11.90%
	3100	Total: Mechanical & Electrical	▼	39.50	51.50	62	20.50%	23%	26.50%
54	0010	LIVING, ASSISTED	S.F.	121	142	168			
	0020	Total project costs	C.F.	10.15	11.85	13.50			
	0500	Masonry	S.F.	3.50	4.23	5.20	2.36%	3.16%	3.90%
	1800	Equipment		2.68	3.13	4.09	2.06%	2.45%	2.87%
	2720	Plumbing		10.10	13.55	14.05	6.05%	8.15%	10.60%
	2770	Heating, ventilating, air conditioning		12	12.55	13.75	7.95%	9.35%	9.70%
	2900	Electrical		11.80	13.05	15	8.95%	9.95%	10.65%
	3100	Total: Mechanical & Electrical	▼	33	38.50	44.50	25%	28.50%	31.50%
55	0010	MEDICAL CLINICS	S.F.	123	151	192			
	0020	Total project costs	C.F.	9	11.65	15.50			
	1800	Equipment	S.F.	3.32	7	10.85	1.05%	2.94%	4.89%
	2720	Plumbing		8.15	11.50	15.40	6.15%	8.40%	10.10%
	2770	Heating, ventilating, air conditioning		9.75	12.75	18.75	6.65%	8.85%	11.10%
	2900	Electrical		10.55	15	19.60	8.10%	10%	12.20%
	3100	Total: Mechanical & Electrical	▼	33.50	46	63	22.50%	27%	33.50%
	3500	See also division 11700 (MF2004 11 71 00)							
57	0010	MEDICAL OFFICES	S.F.	115	143	175			
	0020	Total project costs	C.F.	8.60	11.70	15.80			
	1800	Equipment	S.F.	3.81	7.55	10.70	.68%	4.97%	7.05%
	2720	Plumbing		6.40	9.85	13.25	5.60%	6.80%	8.50%
	2770	Heating, ventilating, air conditioning		7.70	11.15	14.70	6.10%	8%	9.70%
	2900	Electrical		9.25	13.45	18.80	7.60%	9.80%	11.40%
	3100	Total: Mechanical & Electrical	▼	25	36	52	19.35%	23%	28.50%
59	0010	MOTELS	S.F.	73	106	138			
	0020	Total project costs	C.F.	6.50	8.70	14.20			
	2720	Plumbing	S.F.	7.40	9.40	11.25	9.45%	10.60%	12.50%
	2770	Heating, ventilating, air conditioning		4.50	6.70	12.05	5.60%	5.60%	10%
	2900	Electrical		6.90	8.70	10.85	7.45%	9.05%	10.45%
	3100	Total: Mechanical & Electrical	▼	22	29.50	50.50	18.50%	24%	25.50%
	5000								
	9000	Per rental unit, total cost	Unit	37,100	70,500	76,500			
	9500	Total: Mechanical & Electrical	"	7,225	10,900	12,700			
60	0010	NURSING HOMES	S.F.	114	147	181			
	0020	Total project costs	C.F.	9	11.25	15.35			
	1800	Equipment	S.F.	3.60	4.77	7.95	2.02%	3.62%	4.99%
	2720	Plumbing		9.80	14.85	17.90	8.75%	10.10%	12.70%
	2770	Heating, ventilating, air conditioning		10.30	15.65	21	9.70%	11.45%	11.80%
	2900	Electrical		11.35	14.15	19.25	9.40%	10.55%	12.40%
	3100	Total: Mechanical & Electrical	▼	27	38	63.50	26%	29.50%	30.50%
	9000	Per bed or person, total cost	Bed	50,500	63,500	82,000			
61	0010	OFFICES Low Rise (1 to 4 story)	S.F.	96.50	125	163			
	0020	Total project costs	C.F.	6.85	9.50	12.50			
	0100	Site work	S.F.	7.75	13.70	20	6.20%	9.70%	13.50%
	0500	Masonry		3.84	7.65	13.80	2.62%	5.45%	8.50%
	1800	Equipment		1.02	2.01	5.45	.60%	1.50%	3.50%
	2720	Plumbing		3.44	5.30	7.80	3.66%	4.50%	6.10%
	2770	Heating, ventilating, air conditioning		7.60	10.60	15.55	7.20%	10.30%	11.70%
	2900	Electrical		7.90	11.25	16.05	7.45%	9.65%	11.40%

5017 00 S.F. Costs		UNIT	UNIT COSTS			% OF TOTAL			
			1/4	MEDIAN	3/4	1/4	MEDIAN	3/4	
31	Total: Mechanical & Electrical	S.F.	21.50	30	45	18.20%	22%	27%	61
00	OFFICES Mid Rise (5 to 10 story)	S.F.	102	124	168				62
00	Total project costs	C.F.	7.20	9.20	13.10				
20	Plumbing	S.F.	3.08	4.78	6.85	2.83%	3.74%	4.50%	
20	Heating, ventilating, air conditioning		7.75	11.05	17.65	7.65%	9.40%	11%	
20	Electrical		7.55	9.70	14.65	6.35%	7.80%	10%	
30	Total: Mechanical & Electrical	↓	19.60	25.50	48	18.95%	21%	27.50%	
00	OFFICES High Rise (11 to 20 story)	S.F.	125	158	194				63
00	Total project costs	C.F.	8.75	10.95	15.70				
20	Electrical	S.F.	7.60	9.30	13.80	5.80%	7.85%	10.50%	
30	Total: Mechanical & Electrical	↓	24.50	33	55.50	16.90%	23.50%	34%	
00	POLICE STATIONS	S.F.	151	197	249				64
00	Total project costs	C.F.	11.95	14.65	20				
00	Masonry	S.F.	14.10	25	31.50	6.70%	9.10%	11.35%	
10	Equipment		2.39	10.50	16.65	.98%	3.35%	6.70%	
20	Plumbing		8.40	16.75	21	5.65%	6.90%	10.75%	
20	Heating, ventilating, air conditioning		13.15	17.45	24.50	5.85%	10.55%	11.70%	
20	Electrical		16.45	23.50	31	9.80%	11.85%	14.80%	
30	Total: Mechanical & Electrical	↓	54	64.50	87.50	25%	31.50%	32.50%	
00	POST OFFICES	S.F.	119	146	187				65
00	Total project costs	C.F.	7.15	9	10.30				
20	Plumbing	S.F.	5.35	6.60	8.35	4.24%	5.30%	5.60%	
20	Heating, ventilating, air conditioning		8.35	10.30	11.45	6.65%	7.15%	9.35%	
20	Electrical		9.80	13.75	16.35	7.25%	9%	11%	
30	Total: Mechanical & Electrical	↓	28.50	37	42	16.25%	18.80%	22%	
00	POWER PLANTS	S.F.	825	1,075	2,000				66
00	Total project costs	C.F.	22.50	49.50	106				
20	Electrical	S.F.	58	123	184	9.30%	12.75%	21.50%	
30	Total: Mechanical & Electrical	↓	145	470	1,050	32.50%	32.50%	52.50%	
00	RELIGIOUS EDUCATION	S.F.	95.50	125	154				67
00	Total project costs	C.F.	5.30	7.60	9.50				
20	Plumbing	S.F.	3.99	5.65	7.95	4.40%	5.30%	7.10%	
20	Heating, ventilating, air conditioning		10.10	11.45	16.15	10.05%	11.45%	12.35%	
20	Electrical		7.60	10.70	14.15	7.60%	9.05%	10.35%	
30	Total: Mechanical & Electrical	↓	31	40.50	49.50	22%	23%	27%	
00	RESEARCH Laboratories & Facilities	S.F.	146	207	300				69
00	Total project costs	C.F.	10.65	21	25				
10	Equipment	S.F.	6.35	12.50	30.50	.94%	4.58%	9.10%	
20	Plumbing		14.35	18.35	29.50	6.15%	8.30%	10.80%	
20	Heating, ventilating, air conditioning		12.85	43	51	7.25%	16.50%	17.50%	
20	Electrical		17.20	27.50	45	9.55%	11.50%	15.40%	
30	Total: Mechanical & Electrical	↓	55	95.50	137	29.50%	37%	41%	
00	RESTAURANTS	S.F.	139	179	233				70
00	Total project costs	C.F.	11.65	15.30	20				
10	Equipment	S.F.	8.95	22	33.50	6.10%	13%	15.65%	
20	Plumbing		11	13.30	17.50	6.10%	8.15%	9%	
20	Heating, ventilating, air conditioning		13.95	19.30	23.50	9.20%	12%	12.40%	
20	Electrical		14.65	18.10	23.50	8.35%	10.55%	11.55%	
30	Total: Mechanical & Electrical	↓	45.50	48.50	63	21%	25%	29.50%	
90	Per seat unit, total cost	Seat	5,100	6,775	8,025				
90	Total: Mechanical & Electrical	"	1,275	1,700	2,000				
00	RETAIL STORES	S.F.	65	87	115				72
00	Total project costs	C.F.	4.39	6.25	8.70				
20	Plumbing	S.F.	2.35	3.92	6.70	3.26%	4.60%	6.80%	
20	Heating, ventilating, air conditioning		5.05	6.95	10.45	6.75%	8.75%	10.15%	
20	Electrical		5.85	7.95	11.50	7.25%	9.90%	11.60%	
30	Total: Mechanical & Electrical	↓	15.50	19.85	27.50	17.05%	21%	23.50%	

50 17 | Square Foot Costs

50 17 00 S.F. Costs			UNIT COSTS			% OF TOTAL		
		UNIT	1/4	MEDIAN	3/4	1/4	MEDIAN	3/4
74	0010	SCHOOLS Elementary	S.F.	106	132	161		
	0020	Total project costs	C.F.	6.90	8.85	11.45		
	0500	Masonry	S.F.	9.20	16.15	24	5.25%	10.65%
	1800	Equipment		2.89	4.88	9	1.83%	3.13%
	2720	Plumbing		6.10	8.60	11.50	5.70%	7.15%
	2730	Heating, ventilating, air conditioning		9.10	14.50	20.50	8.15%	10.80%
	2900	Electrical		10	13.25	16.90	8.45%	10.05%
	3100	Total: Mechanical & Electrical	▼	36.50	44.50	55	25%	27.50%
	9000	Per pupil, total cost	Ea.	12,100	18,000	40,400		
	9500	Total: Mechanical & Electrical		3,425	4,325	10,900		
76	0010	SCHOOLS Junior High & Middle	S.F.	109	134	163		
	0020	Total project costs	C.F.	6.90	8.95	10.05		
	0500	Masonry	S.F.	13.60	17.80	21.50	8%	11.60%
	1800	Equipment		3.48	5.60	8.25	1.80%	3.09%
	2720	Plumbing		6.35	7.80	9.70	5.30%	6.80%
	2770	Heating, ventilating, air conditioning		12.70	15.45	27	8.90%	11.55%
	2900	Electrical		10.70	12.90	16.60	7.90%	9.35%
	3100	Total: Mechanical & Electrical	▼	35	44.50	55.50	23.50%	26.50%
	9000	Per pupil, total cost	Ea.	13,800	18,100	24,400		
78	0010	SCHOOLS Senior High	S.F.	113	139	174		
	0020	Total project costs	C.F.	6.85	9.85	16.25		
	1800	Equipment	S.F.	2.98	7	9.75	1.88%	2.91%
	2720	Plumbing		6.35	9.55	17.45	5.60%	6.90%
	2770	Heating, ventilating, air conditioning		13	14.85	22.50	8.95%	11.60%
	2900	Electrical		11.45	14.85	22.50	8.65%	10.20%
	3100	Total: Mechanical & Electrical	▼	37.50	44	74	23.50%	26.50%
	9000	Per pupil, total cost	Ea.	10,700	21,700	27,200		
80	0010	SCHOOLS Vocational	S.F.	92	133	165		
	0020	Total project costs	C.F.	5.70	8.20	11.35		
	0500	Masonry	S.F.	5.40	13.30	20.50	3.20%	4.61%
	1800	Equipment		2.87	7.15	9.85	1.24%	3.10%
	2720	Plumbing		5.85	8.75	12.85	5.40%	6.90%
	2770	Heating, ventilating, air conditioning		8.20	15.30	25.50	8.60%	11.90%
	2900	Electrical		9.55	13.05	17.85	8.45%	11%
	3100	Total: Mechanical & Electrical	▼	36	36.50	63	27.50%	29.50%
	9000	Per pupil, total cost	Ea.	12,800	34,200	51,000		
83	0010	SPORTS ARENAS	S.F.	80	107	165		
	0020	Total project costs	C.F.	4.35	7.80	10.05		
	2720	Plumbing	S.F.	4.65	7.05	14.90	4.35%	6.35%
	2770	Heating, ventilating, air conditioning		10	11.85	16.45	8.80%	10.20%
	2900	Electrical		8.35	11.35	14.65	8.60%	9.90%
	3100	Total: Mechanical & Electrical	▼	21	37	49.50	21.50%	25%
85	0010	SUPERMARKETS	S.F.	74	85.50	101		
	0020	Total project costs	C.F.	4.13	4.99	7.55		
	2720	Plumbing	S.F.	4.14	5.20	6.05	5.40%	6%
	2770	Heating, ventilating, air conditioning		6.10	8.10	9.85	8.60%	8.65%
	2900	Electrical		9.30	10.60	12.60	10.40%	12.45%
	3100	Total: Mechanical & Electrical	▼	23.50	25.50	34	23.50%	27.50%
86	0010	SWIMMING POOLS	S.F.	120	201	430		
	0020	Total project costs	C.F.	9.60	12	13.10		
	2720	Plumbing	S.F.	11.10	12.70	17	4.80%	9.70%
	2900	Electrical		9	14.60	21.50	5.75%	6.95%
	3100	Total: Mechanical & Electrical	▼	22	56	76.50	11.15%	14.10%
87	0010	TELEPHONE EXCHANGES	S.F.	159	227	296		
	0020	Total project costs	C.F.	9.90	15.90	22		
	2720	Plumbing	S.F.	6.70	10.40	15.20	4.52%	5.80%
	2770	Heating, ventilating, air conditioning		15.60	31.50	39	11.80%	16.05%

5017 00 S.F. Costs		UNIT	UNIT COSTS			% OF TOTAL			
			1/4	MEDIAN	3/4	1/4	MEDIAN	3/4	
29	Electrical	S.F.	16.20	25.50	45.50	10.90%	14%	17.85%	87
30	Total: Mechanical & Electrical	↓	48	91	128	29.50%	33.50%	44.50%	
00	THEATERS	S.F.	100	129	189				91
00	Total project costs	C.F.	4.63	6.85	10.05				
27	Plumbing	S.F.	3.34	3.62	14.80	2.92%	4.70%	6.80%	
27	Heating, ventilating, air conditioning	↓	9.75	11.80	14.60	8%	12.25%	13.40%	
29	Electrical		8.75	11.80	24	8.05%	9.35%	12.25%	
31	Total: Mechanical & Electrical	↓	22.50	30.50	36	21.50%	25.50%	27.50%	
00	TOWN HALLS City Halls & Municipal Buildings	S.F.	112	142	185				94
00	Total project costs	C.F.	10.20	11.95	17.20				
27	Plumbing	S.F.	4.67	8.75	15.55	4.31%	5.95%	7.95%	
27	Heating, ventilating, air conditioning	↓	8.45	16.75	24.50	7.05%	9.05%	13.45%	
29	Electrical		10.60	14.75	19.95	8.05%	9.45%	11.65%	
31	Total: Mechanical & Electrical	↓	37	46.50	71.50	22%	26.50%	31%	
00	WAREHOUSES & Storage Buildings	S.F.	41.50	60.50	88.50				97
00	Total project costs	C.F.	2.19	3.42	5.65				
01	Site work	S.F.	4.31	8.55	12.95	6.05%	12.95%	19.85%	
05	Masonry	↓	2.47	5.95	12.80	3.73%	7.40%	12.30%	
18	Equipment		.67	1.45	8.10	.72%	1.69%	5.55%	
27	Plumbing		1.39	2.50	4.67	2.90%	4.80%	6.55%	
27	Heating, ventilating, air conditioning	↓	1.59	4.48	6	2.41%	5%	8.90%	
29	Electrical		2.47	4.65	7.70	5.15%	7.20%	10.10%	
31	Total: Mechanical & Electrical	↓	6.90	10.55	21	13.30%	19.10%	26%	
00	WAREHOUSE & OFFICES Combination	S.F.	51.50	68.50	93.50				99
00	Total project costs	C.F.	2.63	3.81	5.65				
18	Equipment	S.F.	.89	1.72	2.56	.52%	1.20%	2.40%	
27	Plumbing	↓	1.98	3.45	5.15	3.74%	4.76%	6.30%	
27	Heating, ventilating, air conditioning		3.13	4.89	6.85	5%	5.65%	10.05%	
29	Electrical		3.44	5.10	8.10	5.75%	8%	10%	
31	Total: Mechanical & Electrical	↓	9.55	14.80	23.50	14.40%	19.95%	24.50%	

Square Foot Project Size Modifier

One factor that affects the S.F. cost of a particular building is the size. In general, for buildings built to the same specifications in the same locality, the larger building will have the lower S.F. cost. This is due mainly to the decreasing contribution of the exterior walls plus the economy of scale usually achievable in larger buildings. The Area Conversion Scale shown below will give a factor to convert costs for the typical size building to an adjusted cost for the particular project.

Example: Determine the cost per S.F. for a 100,000 S.F. Mid-rise apartment building.

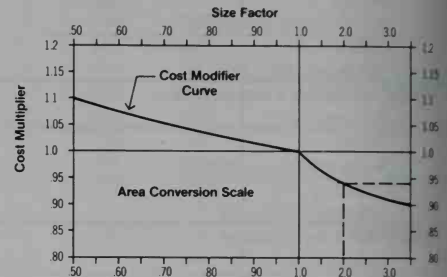
$$\frac{\text{Proposed building area} = 100,000 \text{ S.F.}}{\text{Typical size from below} = 50,000 \text{ S.F.}} = 2.00$$

Enter Area Conversion scale at 2.0, intersect curve, read horizontally the appropriate cost multiplier of .94. Size adjusted cost becomes .94 x \$111.00 = \$104.00 based on national average costs.

Note: For Size Factors less than .50, the Cost Multiplier is 1.1
For Size Factors greater than 3.5, the Cost Multiplier is .90

The Square Foot Base Size lists the median costs, most typical project size in accumulated data, and the range in size of the projects.

The Size Factor for your project is determined by dividing your project area in S.F. by the typical project size for the particular Building Type. With this factor, enter the Area Conversion Scale at the appropriate Size Factor and determine the appropriate cost multiplier for your building size.



Square Foot Base Size							
Building Type	Median Cost per S.F.	Typical Size Gross S.F.	Typical Range Gross S.F.	Building Type	Median Cost per S.F.	Typical Size Gross S.F.	Typical Range Gross S.F.
Apartments, Low Rise	\$ 87.00	21,000	9,700 - 37,200	Jails	\$ 267.00	40,000	5,500 - 145,000
Apartments, Mid Rise	111.00	50,000	32,000 - 100,000	Libraries	168.00	12,000	7,000 - 31,000
Apartments, High Rise	120.00	145,000	95,000 - 600,000	Living, Assisted	142.00	32,300	23,500 - 50,000
Auditoriums	148.00	25,000	7,600 - 39,000	Medical Clinics	151.00	7,200	4,200 - 15,000
Auto Sales	109.00	20,000	10,800 - 28,600	Medical Offices	143.00	6,000	4,000 - 15,000
Banks	197.00	4,200	2,500 - 7,500	Motels	106.00	40,000	15,800 - 120,000
Churches	135.00	17,000	2,000 - 42,000	Nursing Homes	147.00	23,000	15,000 - 37,000
Clubs, Country	137.00	6,500	4,500 - 15,000	Offices, Low Rise	125.00	20,000	5,000 - 80,000
Clubs, Social	131.00	10,000	6,000 - 13,500	Offices, Mid Rise	124.00	120,000	20,000 - 300,000
Clubs, YMCA	154.00	28,300	12,800 - 39,400	Offices, High Rise	158.00	260,000	120,000 - 800,000
Colleges (Class)	156.00	50,000	15,000 - 150,000	Police Stations	197.00	10,500	4,000 - 18,000
Colleges (Science Lab)	251.00	45,600	16,600 - 80,000	Post Offices	146.00	12,400	6,800 - 30,000
College (Student Union)	185.00	33,400	16,000 - 85,000	Power Plants	1075.00	7,500	1,000 - 20,000
Community Center	139.00	9,400	5,300 - 16,700	Religious Education	125.00	9,000	6,000 - 12,000
Court Houses	192.00	32,400	17,800 - 106,000	Research	207.00	19,000	6,300 - 45,000
Dept. Stores	81.50	90,000	44,000 - 122,000	Restaurants	179.00	4,400	2,800 - 6,000
Dormitories, Low Rise	158.00	25,000	10,000 - 95,000	Retail Stores	87.00	7,200	4,000 - 17,000
Dormitories, Mid Rise	183.00	85,000	20,000 - 200,000	Schools, Elementary	132.00	41,000	24,500 - 55,000
Factories	79.00	26,400	12,900 - 50,000	Schools, Jr. High	134.00	92,000	52,000 - 119,000
Fire Stations	145.00	5,800	4,000 - 8,700	Schools, Sr. High	139.00	101,000	50,500 - 175,000
Fraternity Houses	136.00	12,500	8,200 - 14,800	Schools, Vocational	133.00	37,000	20,500 - 82,000
Funeral Homes	151.00	10,000	4,000 - 20,000	Sports Arenas	107.00	15,000	5,000 - 40,000
Garages, Commercial	97.00	9,300	5,000 - 13,600	Supermarkets	85.50	44,000	12,000 - 60,000
Garages, Municipal	123.00	8,300	4,500 - 12,600	Swimming Pools	201.00	20,000	10,000 - 32,000
Garages, Parking	52.50	163,000	76,400 - 225,300	Telephone Exchange	227.00	4,500	1,200 - 10,000
Gymnasiums	133.00	19,200	11,600 - 41,000	Theaters	129.00	10,500	8,800 - 17,000
Hospitals	240.00	55,000	27,200 - 125,000	Town Halls	142.00	10,800	4,800 - 29,400
House (Elderly)	120.00	37,000	21,000 - 66,000	Warehouses	60.50	25,000	8,000 - 72,000
Housing (Public)	110.00	36,000	14,400 - 74,400	Warehouse & Office	68.50	25,000	8,000 - 72,000
Ice Rinks	159.00	29,000	27,200 - 33,600				

Abbreviations

Area Square Feet; Ampere	BTUH	BTU per Hour	Cwt.	100 Pounds
Acrylonitrile Butadiene Styrene;	B.U.R.	Built-up Roofing	C.W.X.	Cool White Deluxe
Asbestos Bonded Steel	BX	Interlocked Armored Cable	C.Y.	Cubic Yard (27 cubic feet)
Alternating Current;	°C	degree centegrade	C.Y./Hr.	Cubic Yard per Hour
Air-Conditioning;	c	Conductivity, Copper Sweat	Cyl.	Cylinder
Asbestos Cement;	C	Hundred; Centigrade	d	Penny (nail size)
Plywood Grade A & C	C/C	Center to Center, Cedar on Cedar	D	Deep; Depth; Discharge
American Concrete Institute	C-C	Center to Center	Dis., Disch.	Discharge
Plywood, Grade A & D	Cab.	Cabinet	Db.	Decibel
Additional	Cair.	Air Tool Laborer	Dbl.	Double
Adjustable	Calc	Calculated	DC	Direct Current
Audio-frequency	Cap.	Capacity	DDC	Direct Digital Control
American Gas Association	Carp.	Carpenter	Demob.	Demobilization
Aggregate	C.B.	Circuit Breaker	d.f.u.	Drainage Fixture Units
Ampere Hours	C.C.A.	Chromate Copper Arsenate	D.H.	Double Hung
Ampere-hour	C.C.F.	Hundred Cubic Feet	DHW	Domestic Hot Water
Air Handling Unit	cd	Candela	DI	Ductile Iron
American Institute of Architects	cd/sf	Candela per Square Foot	Diag.	Diagonal
Ampere Interrupting Capacity	CD	Grade of Plywood Face & Back	Diam., Dia	Diameter
Allowance	CDX	Plywood, Grade C & D, exterior glue	Distrib.	Distribution
Altitude	Cefi.	Cement Finisher	Div.	Division
Aluminum	Cem.	Cement	Dk.	Deck
Ante Meridiem	CF	Hundred Feet	D.L.	Dead Load; Diesel
Ampere	C.E	Cubic Feet	DLH	Deep Long Span Bar Joist
Anodized	CFM	Cubic Feet per Minute	Do.	Ditto
Approximate	c.g.	Center of Gravity	Dp.	Depth
Apartment	CHW	Chilled Water;	D.P.S.T.	Double Pole, Single Throw
Asbestos		Commercial Hot Water	Dr.	Drive
American Standard Building Code	C.I.	Cast Iron	Drink.	Drinking
Asbestos Worker	C.I.P.	Cast in Place	D.S.	Double Strength
American Society of Civil Engineers	Circ.	Circuit	D.S.A.	Double Strength A Grade
American Society of Heating,	C.I.L.	Carload Lot	D.S.B.	Double Strength B Grade
Refrig. & AC Engineers	Clab.	Common Laborer	Dty.	Duty
American Society of Mechanical	Clam	Common maintenance laborer	DWV	Drain Waste Vent
Engineers	C.L.E	Hundred Linear Feet	DX	Deluxe White, Direct Expansion
American Society for Testing and	CLF	Current Limiting Fuse	dyn	Dyne
Materials	CLP	Cross Linked Polyethylene	e	Eccentricity
Attachment	cm	Centimeter	E	Equipment Only; East
Average	CMP	Corr. Metal Pipe	Ea.	Each
American Wire Gauge	C.M.U.	Concrete Masonry Unit	E.B.	Encased Burial
American Water Works Assoc.	CN	Change Notice	Econ.	Economy
Barrel	Col.	Column	E.C.Y	Embankment Cubic Yards
Grade B and Better;	CO ₂	Carbon Dioxide	EDP	Electronic Data Processing
Balled & Burlapped	Comb.	Combination	EIFS	Exterior Insulation Finish System
Bell and Spigot	Compr.	Compressor	E.D.R.	Equiv. Direct Radiation
Black and White	Conc.	Concrete	Eq.	Equation
Body-centered Cubic	Cont.	Continuous; Continued, Container	EL	elevation
Bank Cubic Yards	Corr.	Corrugated	Elec.	Electrician; Electrical
Bevel End	Cos	Cosine	Elev.	Elevator; Elevating
Board Feet	Cot	Cotangent	EMT	Electrical Metallic Conduit;
Bag of Cement	Cov.	Cover		Thin Wall Conduit
Boiler Horsepower;	C/P	Cedar on Paneling	Eng.	Engine, Engineered
Brake Horsepower	CPA	Control Point Adjustment	EPDM	Ethylene Propylene Diene
Black Iron	Cplg.	Coupling		Monomer
Bituminous	C.P.M.	Critical Path Method	EPS	Expanded Polystyrene
Bituminous Concrete	CPVC	Chlorinated Polyvinyl Chloride	Eqhv.	Equip. Oper., Heavy
Backed	C.Pr.	Hundred Pair	Eqlt.	Equip. Oper., Light
Breakers	CRC	Cold Rolled Channel	Eqmd.	Equip. Oper., Medium
Building	Creos.	Creosote	Eqmrm.	Equip. Oper., Master Mechanic
Block	Crpt.	Carpet & Linoleum Layer	Egol.	Equip. Oper., Oilers
Beam	CRT	Cathode-ray Tube	Equip.	Equipment
Boilermaker	CS	Carbon Steel, Constant Shear Bar	ERW	Electric Resistance Welded
Blows per Minute		Joist	E.S.	Energy Saver
Bedroom	Csc	Coscant	Est.	Estimated
Bearing	C.S.F.	Hundred Square Feet	esu	Electrostatic Units
Bricklayer Helper	CSI	Construction Specifications	E.W.	Each Way
Bricklayer		Institute	EWT	Entering Water Temperature
Brick	C.T.	Current Transformer	Excav.	Excavation
Bearing	CTS	Copper Tube Size	Exp.	Expansion, Exposure
Brass	Cu	Copper, Cubic	Ext.	Exterior
Bronze	Cu. Ft.	Cubic Foot	Extru.	Extrusion
Basin	cw	Continuous Wave	f.	Fiber stress
Better	C.W.	Cool White; Cold Water	F	Fahrenheit; Female; Fill
British Thermal Unit			Fab.	Fabricated

Abbreviations

FBGs	Fiberglass	H.P.	Horsepower; High Pressure	LE	Lead Equivalent
FC.	Footcandles	H.P.F.	High Power Factor	LED	Light Emitting Diode
f.c.c.	Face-centered Cubic	lfr.	Hour	LF	Linear Foot
f'c.	Compressive Stress in Concrete;	Hrs./Day	Hours per Day	LF Nose	Linear Foot of Stair Nosing
EE.	Extreme Compressive Stress	HSC	High Short Circuit	LF Rsr	Linear Foot of Stair Riser
FFP	Front End	Ht.	Height	lg.	Long; Length; Large
	Fluorinated Ethylene Propylene	Htg.	Heating	L & H	Light and Heat
EG.	(Teflon)	lttrs.	Heaters	LH	Long Span Bar Joist
EHA.	Flat Grain	HVAC	Heating, Ventilation & Air-Conditioning	L.H.	Labor Hours
Fig.	Federal Housing Administration	Hvy.	Heavy	L.L.	Live Load
Fin.	Figure	HW	Hot Water	L.L.D.	Lamp Lumen Depreciation
Fixt.	Finished	Hyd.:Hydr.	Hydraulic	lm	Lumen
Fl. Oz.	Fixture	Hz.	Hertz (cycles)	lm/sf	Lumen per Square Foot
Flr.	Fluid Ounces	I.	Moment of Inertia	lm/W	Lumen per Watt
EM.	Floor	IBC	International Building Code	L.O.A.	Length Over All
	Frequency Modulation;	I.C.	Interrupting Capacity	log	Logarithm
Fmg.	Factory Mutual	ID	Inside Diameter	L.O.L.	Laterallot
Fdn.	Framing	I.D.	Inside Dimension; Identification	long.	longitude
Fori.	Foundation	IE	Inside Frosted	L.P.	Liquefied Petroleum; Low Pres
Foro.	Foreman, Inside	I.M.C.	Intermediate Metal Conduit	L.P.F.	Low Power Factor
Fount.	Foreman, Outside	in.	Inch	LR	Long Radius
fpm	Fountain	Incan.	Incandescent	LS.	Lump Sum
FPT	Feet per Minute	Incl.	Included; Including	Lt.	Light
Fr.	Female Pipe Thread	Int.	Interior	Lt. Ga.	Light Gauge
FR.	Frame	Inst.	Installation	L.T.	Less than Truckload Lot
FRK	Fire Rating	Insul.	Insulation/Insulated	Lt. Wt.	Lightweight
FRP	Foil Reinforced Kraft	I.P.	Iron Pipe	L.V.	Low Voltage
FS	Fiberglass Reinforced Plastic	I.P.S.	Iron Pipe Size	M	Thousand; Material; Male
FSC	Forged Steel	I.P.T.	Iron Pipe Threaded	M ² CA	Light Wall Copper Tubing
ft.	Cast Body; Cast Switch Box	I.W.	Indirect Waste	m/hr; M.H.	Meters Squared Contact Area
Ftng.	Foot; Feet	J	Joule	ma	Man-hour
Fig.	Fitting	J.I.C.	Joint Industrial Council	Mach.	Milliamper
ft lb.	Footing	K	Thousand;Thousand Pounds;	Mag. Str.	Machine
Furn.	Foot Pound	K.A.H.	Heavy Wall Copper Tubing, Kelvin	Maint.	Magnetic Starter
FVNR	Furniture	KCMIL	Thousand Amp. Hours	Marb.	Maintenance
FXM	Full Voltage Non-Reversing	KD	Thousand Circular Mils	Mat; Mat1.	Marble Setter
Fy.	Female by Male	K.D.A.T.	Knock Down	Max.	Material
g	Minimum Yield Stress of Steel	kg	Kiln Dried After Treatment	MBF	Maximum
G	Gram	kg	Kilogram	MBH	Thousand Board Feet
Ga.	Gauss	kG	Kilogauss	MC	Thousand BTU's per hr
Gal., gal.	Gauge	kgf	Kilogram Force	M.C.F.	Metal Clad Cable
gpm, GPM	Gallon	kHz	Kilohertz	M.C.F.M.	Thousand Cubic Feet
Galv.	Gallon per Minute	Kip.	1000 Pounds	M.C.M.	Thousand Cubic Feet per Min
Gen.	Galvanized	KJ	Kiljoule	M.C.P.	Thousand Circular Mils
G.E.I.	General	K.L.	Effective Length Factor	MD	Motor Circuit Protector
Glaz.	Ground Fault Interrupter	K.L.F.	Kips per Linear Foot	M.D.O.	Medium Duty
GPD	Glazier	Km	Kilometer	Med.	Medium Density Overlay
GPH	Gallons per Day	K.S.F.	Kips per Square Foot	MF	Medium
GPM	Gallons per Hour	K.S.I.	Kips per Square Inch	M.F.B.M.	Thousand Feet
GR	Gallons per Minute	kV	Kilovolt	Mfg.	Thousand Feet Board Measur
Gran.	Grade	kVA	Kilovolt Ampere	Mfrs.	Manufacturing
Grnd.	Granular	K.V.A.R.	Kilovar (Reactance)	mg	Manufacturers
H	Ground	KW	Kilowatt	mi	Milligram
H.C.	High Henry	KWh	Kilowatt-hour	MGD	Million Gallons per Day
H.D.	High Capacity	I.	Labor Only; Length; Long;	MGPH	Thousand Gallons per Hour
H.D.O.	High Density	Lab.	Medium Wall Copper Tubing	MH, M.H.	Manhole; Metal Halide; Man
H.D.O.	High Density Overlay	lat	Latitude	MHz	Megahertz
H.D.P.E.	high density polythelene	Lath.	Lather	Mi.	Mile
Hdr.	Header	Lav.	Lavatory	MI	Malleable iron; Mineral Insul
Hdwe.	Hardware	lb.; #	Pound	mm	Millimeter
Help.	Helper Average	L.B.	Load Bearing; L Conduit Body	Mill.	Millwright
HEPA	High Efficiency Particulate Air	L. & E.	Labor & Equipment	Min., min.	Minimum, minute
Hg	Filter	lb./hr.	Pounds per Hour	Misc.	Miscellaneous
HIC	Mercury	lb./L.F.	Pounds per Linear Foot	ml	Milliliter, Mainline
HIM	High Interrupting Capacity	lb/sq.in.	Pound-force per Square Inch	M.L.F.	Thousand Linear Feet
HMWPE	Hollow Metal	L.C.L.	Less than Carload Lot	Mo.	Month
	high molecular weight	L.C.Y.	Loose Cubic Yard	Mobil.	Mobilization
	polyethylene	Ld.	Load	Mog	Mogul Base
H.O.	High Output			MPH	Miles per Hour
Horiz.	Horizontal			MPT	Male Pipe Thread

Abbreviations

Mile Round Trip	Pl.	Plate	S.E.C.A.	Square Foot Contact Area
Millisecond	Plah.	Plaster Helper	S.E. Flr.	Square Foot of Floor
Thousand Square Feet	Plas.	Plasterer	S.E.G.	Square Foot of Ground
Mosaic & Terrazzo Worker	Pluh.	Plumbers Helper	S.E. Hor.	Square Foot Horizontal
Thousand Square Yards	Plum.	Plumber	S.E.R.	Square Feet of Radiation
Mounted	Ply.	Plywood	S.E. Shlf.	Square Foot of Shelf
Mosaic & Terrazzo Helper	p.m.	Post Meridiem	S4S	Surface 4 Sides
Mounting	Pntd.	Painted	Shee.	Sheet Metal Worker
Multi; Multiply	Pord.	Painter, Ordinary	Sin.	Sine
Million Volt Amperes	pp	Pages	Skwk.	Skilled Worker
Million Volt Amperes Reactance	PP, PPL	Polypropylene	SL	Saran Lined
Megavolt	PPM.	Parts per Million	S.L.	Slimline
Megawatt	Pr.	Pair	Sldr.	Solder
Male by Male	P.E.S.B.	Pre-engineered Steel Building	SLH	Super Long Span Bar Joist
Thousand Yards	Prefab.	Prefabricated	S.N.	Solid Neutral
Natural; North	Prefin.	Prefinished	S-O.L.	Socketolet
Nanoampere	Prop.	Propelled	sp	Standpipe
Not Available; Not Applicable	PSF, psf	Pounds per Square Foot	S.P.	Static Pressure; Single Pole; Self-Propelled
National Building Code	PSI, psi	Pounds per Square Inch	Spri.	Sprinkler Installer
Normally Closed	PSIG	Pounds per Square Inch Gauge	spwg	Static Pressure Water Gauge
National Electrical Manufacturers Assoc.	PSP	Plastic Sewer Pipe	S.P.D.T.	Single Pole, Double Throw
Bolted Circuit Breaker to 600V.	Pspr.	Painter, Spray	SPF	Spruce Pine Fir
Non-Load-Bearing	Pst.	Painter, Structural Steel	S.P.S.T.	Single Pole, Single Throw
Non-Metallic Cable	P.T.	Potential Transformer	SPT	Standard Pipe Thread
Nanometer	P. & T.	Pressure & Temperature	Sq.	Square; 100 Square Feet
Number	Ptd.	Painted	Sq. Hd.	Square Head
Normally Open	Ptns.	Partitions	Sq. In.	Square Inch
Not Otherwise Classified	Pu	Ultimate Load	S.S.	Single Strength; Stainless Steel
Nosing	PVC	Polyvinyl Chloride	S.S.B.	Single Strength B Grade
National Pipe Thread	Pvmt.	Pavement	sst, ss	Stainless Steel
Combination Plug-on/Bolt on	Pwr.	Power	Sswk.	Structural Steel Worker
Circuit Breaker to 240V.	Q	Quantity Heat Flow	Sswl.	Structural Steel Welder
Noise Reduction Coefficient/	Qt.	Quart	St., Std.	Steel
Nuclear Regulator Commission	Quan., Qty.	Quantity	S.T.C.	Sound Transmission Coefficient
Not Rising Stem	Q.C.	Quick Coupling	Std.	Standard
Nanosecond	r	Radius of Gyration	Stg.	Staging
Nanowatt	R	Resistance	STK	Select Tight Knot
Opposing Blade	R.C.P.	Reinforced Concrete Pipe	STP	Standard Temperature & Pressure
On Center	Rect.	Rectangle	Stpi.	Steamfitter, Pipefitter
Outside Diameter	Reg.	Regular	Str.	Strength; Starter, Straight
Outside Dimension	Reinf.	Reinforced	Strd.	Stranded
Overhead Distribution System	Req'd.	Required	Struct.	Structural
Ogee	Res.	Resistant	Sty.	Story
Overhead	Resi.	Residential	Subj.	Subject
Overhead and Profit	Rgh.	Rough	Subs.	Subcontractors
Operator	RGS	Rigid Galvanized Steel	Surf.	Surface
Opening	R.H.W.	Rubber, Heat & Water Resistant; Residential Hot Water	Sw.	Switch
Ornamental	rms	Root Mean Square	Swbd.	Switchboard
Oriented Strand Board	Rnd.	Round	S.Y.	Square Yard
Outside Screw and Yoke	Rodm.	Rodman	Syn.	Synthetic
Overhead	Rofc.	Roofer, Composition	S.Y.P.	Southern Yellow Pine
Oil, Water or Gas	Rofp.	Roofer, Precast	Sys.	System
Ounce	Rohe.	Roofer Helpers (Composition)	t.	Thickness
Pole; Applied Load; Projection	Rots.	Roofer, Tile & Slate	T	Temperature; Ton
Page	R.O.W.	Right of Way	Tan	Tangent
Paperhanger	RPM	Revolutions per Minute	T.C.	Terra Cotta
Powered Air Purifying Respirator	R.S.	Rapid Start	T & C	Threaded and Coupled
Parabolic Reflector	Rsr	Riser	T.D.	Temperature Difference
Piece, Pieces	RT	Round Trip	Tdd	Telecommunications Device for the Deaf
Portland Cement; Power Connector	S.	Suction; Single Entrance; South	T.E.M.	Transmission Electron Microscopy
Pounds per Cubic Foot	SC	Screw Cover	TFE	Tetrafluoroethylene (Teflon)
Phase Contrast Microscopy	SCFM	Standard Cubic Feet per Minute	T. & G.	Tongue & Groove; Tar & Gravel
Professional Engineer;	Scaf.	Scaffold	Th., Thk.	Thick
Porcelain Enamel;	Sch., Sched.	Schedule	Thn.	Thin
Polyethylene; Plain End	S.C.R.	Modular Brick	Thred	Threaded
Perforated	S.D.	Sound Deadening	Tilf.	Tile Layer, Floor
Cross linked polyethylene	S.D.R.	Standard Dimension Ratio	Tilh.	Tile Layer, Helper
Phase	S.E.	Surfaced Edge	THHN	Nylon Jacketed Wire
Pressure Injected	Sel.	Select	THW.	Insulated Strand Wire
Pile Driver	S.E.R., S.E.U.	Service Entrance Cable		
Package	S.F.	Square Foot		

Abbreviations

THWN	Nylon Jacketed Wire	USP	United States Primed	Wrck.	Wrecker
T.L.	Truckload	UTP	Unshielded Twisted Pair	W.S.P.	Water, Steam, Petroleum
T.M.	Track Mounted	V	Volt	WT., Wt.	Weight
Tot.	Total	V.A.	Volt Amperes	WWF	Welded Wire Fabric
TO-L	Threadolet	V.C.T.	Vinyl Composition Tile	XFER	Transfer
T.S.	Trigger Start	VAV	Variable Air Volume	XFMR	Transformer
Tr	Trade	VC	Vencer Core	XHD	Extra Heavy Duty
Transf.	Transformer	Vent.	Ventilation	XHHW,	Cross-Linked Polyethylene Wire
Trhv.	Truck Driver, Heavy	Vert.	Vertical	XLPE	Insulation
Trlr	Trailer	VF	Vinyl Faced	XLP	Cross-linked Polyethylene
Trlt.	Truck Driver, Light	V.G.	Vertical Grain	Y	Wye
TTY	Teletypewriter	V.H.F.	Very High Frequency	yd	Yard
TV	Television	VHO	Very High Output	yr	Year
T.W.	Thermoplastic Water Resistant Wire	Vib.	Vibrating	Δ	Delta
UCI	Uniform Construction Index	V.L.F.	Vertical Linear Foot	%	Percent
UF	Underground Feeder	Vol.	Volume	~	Approximately
UGND	Underground Feeder	VRP	Vinyl Reinforced Polyester	Ø	Phase; diameter
U.H.F.	Ultra High Frequency	W	Wire; Watt; Wide; West	@	At
U.I.	United Inch	w/	With	#	Pound; Number
U.L.	Underwriters Laboratory	W.C.	Water Column; Water Closet	<	Less Than
Uld.	unloading	W.F.	Wide Flange	>	Greater Than
Unfin.	Unfinished	W.G.	Water Gauge	Z	zone
URD	Underground Residential Distribution	Wldg.	Welding		
US	United States	W. Mile	Wire Mile		
		W-O-L	Weldolet		
		W.R.	Water Resistant		

A							
asbestos	40	plexiglass	295	hose	672	gravel stop	235
equipment asbestos	40	rubber roofing	231	lock	433	grille	513
extinguisher	366	sign	352	make-up unit	525	gutter	236
ground water storage tank	636	wall coating	345	quality	386	handrail	329
aluminum oxide	50	wallcovering	329	register	513	joist shoring	62
floor	77	wood block	321	return grille	513	louver	296, 513
floor	316	Adhesive cement	323	sampling	40	mansard	223
carbide	50, 77	EPDM	211	separators	502	mesh grating	155
floor	324	neoprene	211	spade	672	nail	166
floor	315	PVC	211	supply pneumatic control	499	operating louver	514
floor	316	removal floor	78	supply register	513	oxide abrasive	50
gas pipe	473	roof	227	supported building	432	pipe	639, 641
shock	476	wallpaper	329	supported enclosure	434	plank grating	155
on testing	15	Adjustable astragal	290	supported storage tank cover	432	plank scaffold	21
whirlers	523	jack post	126	supported structures	807	register	513
plugged terminal	526	Adjustment factor	10	supported structures demo	424	reglet	237
or sprinkler system	458	factors labor	462	tube system	452	rivet	124
card key	291	Admixture cement	77	unit make-up	525	roof panel	222
card type	291	Admixtures concrete	50	vent automatic	502	salvage	463
facial scanner	291	Adobe brick	106	vent for convector or basebd.	529	sash	271
fingerprint scanner	291	Aeration sewage	664	vent roof	239	screen/storm door	247
hand scanner	291	Aerator	493	wall	361	screw	224
video camera	571	Aerial lift	671	Air-compressor mobilization	575	security driveway gate	264
and panels	259	lift truck	676	Aircraft cable	135	service entrance cable	538
dismount	81	photography	14	hangar door	263	shade	408
ceiling	259	seeding	627	Airfoil fan centrifugal	509	shape structural	133
duct	507	survey	28	Airless sprayer	40	sheet metal	235
rate rated	259	Agent form release	51	Airplane hangar	440	shelter	440
door	259	Aggregate exposed	77	hangar door	263	shingle	218
metal	259	lightweight	51	Airport painted markings	617	siding	223
roof	239	masonry	93	Air-source heat pumps	527	siding paint	335
stainless steel	259	spreader	668, 675	Alarm exit control	570	siding panel	223
floor	328	stone	628	panel and devices fire	571	sign	352
and parking area	22	testing	15	residential	549	steeple	371
anchors anchor bolt	60	Aids staging	20	sprinkler	571	storefront	269
cm	314, 362, 363	Air balancing	497	standpipe	571	storm door	247
door	291	barrier curtain	511	valve sprinkler	456	structural	133
door	313	cleaner electronic	516	Alley bowling	397	threshold	286
door	506	compressor	671	Alloy steel chain	158	tile	221, 316
board	313	compressor control system	500	Altar	403	transom	269
board	307	compressor dental	401	Alteration fee	10	trench cover	156
board	65	compressor portable	671	Alternating tread ladder	153	tube frame	267
board	65	conditioner cooling & heating	526	Aluminum astragal	289	weatherstrip	289
board	239	conditioner direct expansion	528	bench	421	weld rod	126
board	133	conditioner fan coil	528	blind	406	window	271
board	236	conditioner gas heat	525	cable tray	542	window demolition	246
board	364	conditioner packaged term.	526	cast tread	157	Aluminum-framed door	269
board	94	conditioner receptacle	547	ceiling tile	318	Ammeter	550
board	256	conditioner removal	496	column	160, 200	Analysis petrographic	15
board	320, 326	conditioner rooftop	525	column base	157, 160	sieve	15
board	494	conditioner self-contained	526	column cap	160	Anchor bolt	60, 93, 117
board	317	conditioner thru-wall	526	commercial door	251	bolt accessories	60
board	317	conditioner ventilating	506	conduit	540	bolt screw	66
board	331	conditioner wiring	549	coping	112	bolt sleeve	60
board	331	conditioners general	496	cross	404	brick	94
board	331	conditioning	813	curtain wall glazed	270	buck	94
board	104	conditioning computer	526	diffuser perforated	512	bumper	379
board	440	conditioning fan	508	directory board	351	chemical	85, 121
board	317, 318	conditioning ventilating	499, 507, 509, 510, 514, 523, 524, 526	dome	439	dovetail	60
board	265	control	502	door	265	epoxy	85, 121
board	440, 441	cooled belt drive condenser	522	double acting swing door	267	expansion	121
board	360	cooled condensing unit	522	downspout	235	framing	168
board	360	cooled direct drive condenser	522	drip edge	238	hollow wall	121
board	296	curtain	511	ductwork	505	lead screw	122
board	141	entraining agent	50	edging	630	machinery	123
board	331, 360	filter	515	entrance	269	masonry	94
board	359, 360	filter mechanical media	515	expansion joint	237	metal nailing	121
board	430, 431	filter permanent washable	515	extrusion	133	nailing	121
board	244, 312	filter roll type	515	fence	618, 619	nylon nailing	121
board	331	filters washable	515	flagpole	372	partition	94
board	331	filtration	40	flashing	224, 233, 479	plastic screw	122
board	318	filtration charcoal type	515	foil	215, 217, 331	rafter	168
board	268	handling fan	508	framing	133	rigid	94
board	317	handling troffer	560	grandstand	435	roof safety	21
board	326	handling unit	525, 528	grating	154	screw	66, 121
				grating tread	157	sill	166

- steel 94
 stone 94
 super high-tensile 599
 toggle-bolt 121
 wedge 122
 Anechoic chamber 430
 Angle corner 361
 curb edging 127
 fiberglass 202
 valve bronze 463
 valve plastic 465
 Anti-siphon device 476
 Apartment call system 567
 hardware 282
 Appliance 384
 plumbing 482
 residential 384, 549
 Approach ramp 329
 Arch culverts oval 640
 laminated 188
 radial 188
 Architectural equipment 384
 fee 10, 762
 Area clean-up 42
 window well 371
 Ark 403
 Armored cable 536
 Arrow 617
 Artificial grass surfacing 618
 turf 618
 Asbestos abatement 40
 abatement equipment 40
 area decontamination 42
 demolition 42
 disposal 43
 encapsulation 43
 remediation plan/method 40
 removal 41
 removal process 774
 As-built drawings 25
 Ash conveyor 402
 receiver 363, 415
 urn 415
 Ashlar stone 109
 veneer 108
 Asphalt base sheet 228
 block 614
 block floor 614
 coating 210
 concrete 574
 curb 615
 cutting 34
 distributor 672
 felt 227, 229
 flashing 233
 flood coat 228
 mix design 15
 pavement 618
 paver 673
 plant portable 675
 primer 208, 323
 roof cold-applied built-up 227
 roof shingle 218
 sealcoat rubberized 610
 sheathing 187
 shingle 218
 sidewalk 610
 testing 14
 Asphaltic binder 612
 concrete 612
 concrete paving 612
 emulsion 626
 pavement 612
 wearing course 612
 Aspirator dental 401
 Astragal adjustable 290
 aluminum 289
 exterior moulding 289
 magnetic 289
 molding 194
 one piece 289
 overlapping 290
 rubber 289
 split 290
 steel 289
 Astronomy observation dome 438
 Athletic carpet indoor 328
 equipment 396, 620
 paving 618
 pole 398
 post 399
 Atomizer water 40
 Attachment ripper 675
 Attachments skidsteer 671
 Attic stair 386
 Audio masking 441
 Audiometric room 430
 Auditorium chair 419
 Auger boring 29
 earth 668
 hole 28
 Augering 574
 Auto park drain 479
 Autoclave aerated conc. block 100
 Automatic fire suppression 458
 flush 489
 opener 281
 opener commercial 281
 opener industrial 281
 operator 281
 teller 381
 washing machine 385
 Automotive equipment 378
 lift 451
 spray painting booth 378
 Autopsy equipment 402
 Autoscrub machine 672
 Awning canvas 370
 fabric 370
 window 271, 273, 370
 window metal-clad 274
 window vinyl-clad 276
 Axial flow fan 508
- ## B
- Backer rod 242
 rod polyethylene 61
 Backerboard 210
 cementitious 310
 Backfill 587, 588
 compaction 818
 dozer 587
 planting pit 627
 structural 587
 trench 578, 580
 Backflow preventer 475
 Backhoe 582, 669
 bucket 670
 extension 675
 Backsplash 411
 countertop 412
 Backstop baseball 620
 basketball 396, 620
 electric 396
 handball court 399
 squash court 399
 tennis court 620
 Backup block 100
 Backwater valve 480
 Baffle roof 240
 Bag disposable 40
 glove 41
 Baked enamel door 250
 enamel frame 248
 Balanced entrance door 269
 Balancing air 497
 water 498
 Balcony fire escape 152
 Bale hay 598
 Baler 403
 Ball valve 466
 valve bronze 463
 valve plastic 465
 wrecking 675
 Ballast fixture 561
 railroad 648
 Ballistic door steel 263
 door wood 263
 Baluster wood stair 197
 Balustrade painting 342
 Bamboo flooring 319
 Band joist framing 146
 riser 395
 Bank counter 381
 equipment 381
 window 381
 Bank run gravel 574
 Banquet booth 417
 Baptistry 403
 Bar bell 396
 chair reinforcing 65
 front 441
 grab 362
 grouted 70
 joist pointing 138
 masonry reinforcing 94
 panic 284
 parallel 400
 restaurant 417
 tie reinforcing 65
 touch 284
 towel 363
 tub 362
 ungrouted 70
 Zee 314
 Barbed wire fence 618
 Barber chair 382
 equipment 382
 Barge construction 678
 Bariatric equipment 400
 lift 400
 Bark mulch 626
 mulch redwood 626
 Barrel bolts 281
 Barrels flasher 672
 reflectorized 672
 Barricade 23, 650
 flasher 672
 tape 23
 Barner acoustical 331
 delineator 650
 dust 23
 impact 650
 median 650
 moisture 211
 parking 617
 plenum 331
 security 380
 separation 40, 45
 slipform paver 675
 X-ray 442
 Barriers and enclosures 22, 23
 crash 650
 highway sound traffic 624
 weather 217
 Base cabinet 408, 409
 carpet 314
 ceramic tile 314
 column 314
 course 314
 course drainage layers 314
 cove 314
 gravel 314
 masonry 314
 molding 314
 plate column 314
 quarry tile 314
 resilient 314
 road 314
 screed 314
 sheet 314
 sink 314
 stabilizer 314
 stone 314
 terrazzo 314
 vanity 314
 wood 314
 Baseball backstop 314
 scoreboard 314
 Baseboard demolition 314
 heat 314
 heat electric 314
 heater electric 314
 Basement bulkhead stair 314
 Baseplate scaffold 314
 shoring 314
 Basic finish materials 314
 Basketball backstop 314
 equipment 314
 scoreboard 314
 Batch trial 314
 Bath paraffin 314
 steam 314
 whirlpool 314
 Bathroom 314
 accessories 314, 315
 exhaust fan 314
 faucet 314
 fixture 314
 heater & fan 314
 soaking 314
 Bathtub bar 314
 enclosure 314
 removal 314
 Bathtubs residential 314
 Batt acoustical 314
 insulation 314
 thermal 314
 Bead blast demo 314
 board insulation 314
 casing 314
 corner 314
 parting 314
 Beam & girder framing 314
 and girder formwork 314
 bond 314
 bondcrete 314
 bottom formwork 314
 castelled 314
 ceiling 314
 concrete 314
 concrete placement 314
 concrete placement grade 314
 decorative 314
 drywall 314
 fiberglass wide flange 314
 fireproofing 314
 formwork side 314
 hanger 314
 laminated 314
 mantel 314
 plaster 314

concrete	80	telescoping	420	insulation	212	culvert formwork	54
concrete	80	Blind exterior	201	insulation foam	212	distribution	638
concrete tee	80	structural bolt	124	paneling	197	electrical	542
creting	68	venetian	406	partition gypsum	303	electrical pull	541
erecting bolster	65	vinyl	406	partition NLB gypsum	303	locker	367
formwork	53	window	406	ridge	181	mail	368
	602	Blinds vertical	406	sheathing	187	pull	541
	15	Block acoustical	104	valance	409	safety deposit	381
brick	177, 185	asphalt	614	verge	194	stair	197
load-bearing stud		autoclave concrete	100	Body harness	21	steel mesh	599
brick	142	backup	100	Boiler	517	storage	17
brick	124	belgian	616	control system	499	termination	567
brick	193	bituminous	614	demolition	496	trench	674
brick	614	Block, brick and mortar	791	electric	517	vent	94
brick	588	Block cap	105	electric steam	517	Boxed headers/ beams	146
brick	616	chimney	100	gas fired	518	Boxes & wiring device	541
brick	395	column	101	gas/oil combination	518	utility	632
brick	478	concrete	100, 102-104	general	462	Boxing ring	396
brick	396	concrete bond beam	100	hot water	518, 519	Brace cross	128
brick	606	concrete exterior	102	insulation	499	Bracing	176
brick	395	corner	105	mobilization	575	framing	148
brick	557	decorative concrete	101	oil fired	518	let-in	176
brick	502	filler	343	removal	496	load-bearing stud wall	141
brick	656	floor	321	steam	518	metal	176
brick	421	floor wood	320	Bollard	126	metal joist	145
brick	421	glass	105	security	649	roof rafter	148
brick	420	glazed	105	Bollards pipe	616	shoring	19
brick	434	glazed concrete	105	Bolster beam reinforcing	65	supports seismic	466
brick	421	grooved	101	slab reinforcing	65	wood	176
brick	421	ground face	101	Bolt & hex nut steel	120	Bracket roof	20
brick	422	hexagonal face	102	anchor	60, 93, 117	scaffold	19
brick	367	high strength	103	blind structural	124	sidewall	20
brick	421	insulation	101	flush	281	Braided bronze hose	475
brick	394	insulation insert concrete	101	high strength	122	Branch circuit fusible switch	552
brick	421	lightweight	104	steel	168	Brass hinge	287
brick	211, 603	lintel	103	Bolt-on circuit-breaker	552	pipe	470
brick	211	manhole	642	Bolts barrel	281	savage	463
brick	615	partition	104	remove	116	screw	167
brick	615	patio	109	Bond beam	93, 100	valve	463
brick	292	profile	102	performance	13, 770	Brazed connection	540
brick	225	reflective	106	Bondercrete	309	Break glass station	571
brick	398	scored	102	Bonding agent	50	ties concrete	78
brick	396	scored split face	102	surface	92	Breaker circuit	557
brick	250, 256	sill	105	Bookcase	369, 409	pavement	671
brick	368	slotted	104	Bookshelf	419	vacuum	476
brick	623	slump	101	Boom truck	676	Breeching draft inducer	516
brick	612	solar screen	105	Booster fan	509	insulation	499
brick	291	split rib	102	Boot pile	605	Brick	98
brick	256	wall removal	31	Booth acoustical	440	adobe	106
brick	255, 256, 258	Blocking carpentry	176	banquet	417	anchor	94
brick	194	steel	176	fixed	417	bedding	614
brick	196	wood	176, 179	mounted	417	Brick, block and mortar	791
brick	201	Blood pressure unit	400	painting	378	Brick cart	672
brick	373	Bloodbank refrigeration	393	portable	440	catch basin	642
brick	86	Blower insulation	673	ticket	440	chimney simulated	364
brick	614	pneumatic tube	452	Border light	562	cleaning	91
brick	210, 632	Blown-in cellulose	214	Bored pile	606	common	97
brick	615	fiberglass	214	Borer horizontal	675	common building	97
brick	673	insulation	214	Boring and exploratory drilling	28	concrete	105
brick	611	Blueboard	309	auger	29	demolition	91, 300
brick	360	partition	303	cased	28	economy	98
brick	79	Bluegrass sod	627	horizontal	632	edging	630
brick	498	Bluestone	108	machine horizontal	668	engineer	98
brick	213	sidewalk	610	Borosilicate pipe	494	face	97, 791
brick	331	sill	110	Borrow	574, 588	floor	614
brick	407	step	611	Bosuns chair	21	flooring miscellaneous	320
brick	301	Board & batten siding	225	Bottle storage	388	manhole	642
brick	301	batten fence	622	Boulder excavation	582	molding	194
brick	674	bulletin	350	Boundary and survey marker	28	oversized	97
brick	582	ceiling	317	Bow & bay metal-clad window	275	paving	614
brick	582	control	351, 395	window	275	removal	30
brick	582	directory	351, 352	Bowl toilet	484	sand	51
brick	90	clock	379	Bowling alley	397	saw	90
brick	435	drain	211	Bowstring truss	188	sidewalk	614
brick	435	gypsum	310	Box beams load-bearing stud wall	142	sill	110
brick	435	high abuse gypsum	313	buffalo	637	simulated	111

- stair 107
- step 610
- structural 97
- testing 15
- utility 98
- vencer 95
- vencer demolition 92
- vencer thin 96
- vent 513
- vent box 94
- wall 107
- wall panel 106
- wash 91
- Bricklaying 791
- Bridge 624
- concrete 624
- cranes 656
- sidewalk 20
- Bridges pedestrian 624
- Bridging 176
- framing 149
- joist 137
- load-bearing stud wall 141
- metal joist 145
- roof rafter 149
- Broiler 389
- Bronze angle valve 463
- ball valve 463
- body strainer 503
- cast tread 157
- cross 404
- globe valve 464
- letter 352
- plaque 352
- push-pull plate 286
- swing check valve 464
- valve 463
- Broom cabinet 409
- finish concrete 76
- sidewalk 674
- Brown coat 325
- Brownstone 109
- Brush chipper 669
- clearing 576
- cutter 609, 670
- mowing 576
- Bubbler 492
- drinking 492
- Buck anchor 94
- rough 179
- Bucket backhoe 670
- clamshell 669
- concrete 608
- dragline 669
- excavator 675
- pavement 675
- Buffalo box 637
- Buggy concrete 76, 608
- Builder's risk insurance 765
- Building air supported 432
- components deconstruction 35
- deconstruction 34
- demo footing & foundation 31
- demolition 30
- demolition selective 31
- directory 351, 567
- greenhouse 434
- hangar 440
- hardware 282
- insulation 214
- model 10
- moving 37
- puper 217
- permit 14
- portable 17
- prefabricated 434
- relocation 37
- shoring 600
- sprinkler 458
- temporary 17
- tension 433
- Built-in range 384
- shower 486
- Built-up roof 227, 228
- roofing 799
- roofing component 227
- roofing system 228
- Bulk tee subpurlin 83, 133
- Bulk bank measure excavating 582
- dozer excavating 583
- drilling and blasting 582
- scrapers excavation 585
- storage dome 438
- Bulkhead door 259
- Bulkhead/cellar door 259
- Bulldozer 587, 670
- Bullet resistant window 381
- Bulletin board 350
- board cork 350
- Bulletproof glass 296
- Bullfloat concrete 668
- Bullnose block 102
- Bumper car 361, 617
- dock 379
- door 282, 285
- parking 617
- railroad 648
- wall 285, 361
- Buncher feller 669
- Bunk house trailer 17
- Burglar alarm indicating panel 570
- Burial cell 37
- Burlap curing 79
- rubbing concrete 78
- Bus-duct cable tap box 555
- copper 554
- fitting 554
- plug in 554
- switch 555
- tap box 555
- Bush hammer 78
- hammer finish concrete 78
- Butt fusion machine 672
- Butterfly valve 496, 634
- Butyl caulking 213
- expulsion joint 237
- flashing 234
- rubber 242
- waterproofing 211
- C**
- Cab finishes elevator 448
- Cabinet & casework 339
- paint/coating 408, 409
- base 409
- broom 410
- casework 409
- corner base 409
- corner wall 409
- current transformer 556
- demolition 166
- door 408, 410
- electric 556
- electrical hinged 541
- fire equipment 365
- hardboard 409
- hardware 410
- hinge 410
- hose rack 365
- hotel 363
- key 291
- kitchen 408
- kitchen metal 412
- laboratory 411
- medicine 363
- metal 412
- nurse station 412
- oven 409
- portable 388
- school 411
- shower 357
- stain 339
- storage 411
- strip 567
- transformer 556
- valve 366
- varnish 439
- wall 409, 412
- wardrobe 369
- Cable aircraft 135
- armored 536
- control 539
- copper 539
- copper shielded 535
- crimp termination 537
- electric 536, 537
- electrical 538
- guide rail 650
- jack 677
- medium-voltage 535
- mineral insulated 538
- pulling 674
- PVC jacket 539
- railing 159
- safety railing 135
- sheathed nonmetallic 538
- sheathed Romex 538
- tip box bus-duct 555
- tensioning 674
- terminations 537
- trailer 674
- tray 542
- tray aluminum 542
- tray ladder type 542
- Cafe door 257
- Caisson bell 606
- concrete 606
- displacement 607
- foundation 606
- Caissons 820
- Calcium chloride 50, 599
- Call system apartment 567
- system emergency 567
- systems nurse 567
- Camera T.V. closed circuit 570
- Canopy 370
- entrance 371, 436
- entry 370
- framing 126
- metal 370
- patio/deck 370
- wood 182
- Cant roof 181, 228
- Cantilever needle beams 602
- retaining wall 622
- Canvas awning 370
- Cap blasting 582
- block 105
- concrete placement pile 76
- dowel 69
- pile 74
- post 168
- Capacitor indoor 558
- Car bumper 361, 616, 617
- tram 674
- Carbon dioxide extinguisher 458
- Carborundum rub finish
- Card catalog file
- key access
- Carillon
- Carousel compactor
- Carpentry finish
- Carpet base
- computer room
- felt pad
- floor
- maintenance
- nylon
- pad
- pad commercial grade
- padding
- removal
- sheet
- stair
- tile
- tile removal
- urethane pad
- wool
- Carport
- Carrel
- Carrier ceiling
- channel
- fixture support
- Cart brick
- concrete
- food delivery
- mounted extinguisher
- Carving stone
- Case display
- exhibit
- good metal
- good wood
- refrigerated
- Cased boring
- Casement window 271, 273
- window metal-clad
- window vinyl
- Casework
- cabinet
- custom
- demolition
- door manufactured hardwood
- door plastic laminate
- educational
- frame wood
- ground
- hospital
- metal 281
- painting
- varnish
- Cash register
- Casing bead
- molding
- Cast in place concrete
- in place concrete curbs
- in place pile
- in place piles adds
- in place terrazzo
- iron bench
- iron damper
- iron grate cover
- iron manhole cover
- iron pipe
- iron pull box
- iron radiator
- iron trap
- iron tread
- trim lock
- Castellated beam
- Caster scaffold
- Castings construction
- fiberglass

air column base	157	masonry	92	furring	304, 313	Clapboard painting	335
air duct	126	masonry unit	100, 102-104	metal frame	248	Classroom heating & cooling	528
air in brick	642	mortar	315, 790	siding	225	seating	419
air leaner	675	parging	210	steel	307	Clay fire	111
air precast	642	plaster	429	Channelizing traffic	650	tennis court	618
air removal	29	Portland	51	Charcoal type air filter	515	tile	220
air vacuum	675	terrazzo portland	324	Charge powder	124	tile coping	112
air	641	testing	15	Charges disposal	43	Clean control joint	78
door	410	underlayment self-leveling	84	Charging desk	418	room	429
door protection	559	vermiculite	240	Check floor	286	steam	91
door scaffold	20	Cementitious backerboard	310	swing valve	464, 497	tank	38
door	243	waterproofing	211	valve	456, 497	Cleaner catch basin	675
door	478	wood fiber plank	83	Checked plate	156	crack	675
door	478	Center bulb waterstop	64	plate cover	156, 157	steam	674
door methane	243	Central vacuum	383	plate platform	156	Cleaning & disposal equipment	391
door	243	vacuum unit	660	Checkout counter	381	brick	91
door fill	107	Centrifugal airfoil fan	509	scanner	381	face brick	790
door cut	93	liquid chiller	523	supermarket	381	masonry	90
door insulation	214	pump	673	Chemical anchor	85, 121	masonry building	90
door reinforcing	94	type HVAC fan	509	cleaning masonry	90	metal	116
door set	196	Ceramic coating	346	dry extinguisher	366	steam	90
door	621	mulch	626	spreader	675	up	25
door	197	tile	314	termite control	599	Cleanout door	365
door	200	tile accessory	315	toilet	674	floor	467
door brick	185	tile countertop	413	water closet	664	pipe	467
door plank	185	tile demolition	301	Chest	418	PVC	468
door	219	tile floor	314	Chilled water coil	527	tee	468
door	225	tile repairs	315	Chiller centrifugal type water	523	Clean-up area	42
door	317	tile waterproofing membrane	316	water	523	Clear and grub site	575
door	317, 318	tiling	314, 316	Chimney	96	grub	575
door	200	Certification welding	16	accessories	364	Clearing brush	576
door	317	Chain core rope	380	all fuel vent	516	selective	575
door	317	fall hoist	677	block	100	site	575
door fiberglass	317	hoist	657	brick	96	Clevis hooks	158
door	309	hoist door	265	demolition	91	Climbing crane	676
door	306	link backstops	620	fireplace	364	hydraulic jack	677
door	300	link fence	23, 619, 621	flue	111	Clip plywood	168
door	512	link fence paint	334	foundation	71	wire rope	133
door	310	link fences high-security	620	high temperature vent	517	Clock equipment	567
door	317	link gate	619	metal	96, 364, 516	timer	548
door	509	link industrial fence	618	screen	364	wall	415
door	177	saw	674	simulated brick	364	Closed circuit television system	570
door	183, 304, 306	steel	158	vent	516	circuit T.V.	381
door	259	trencher	580, 671	Chipper brush	669	deck grandstand	435
door	386	Chair	418	log	670	Closer concealed	282
door	212, 214	auditorium	419	stump	670	electronic	282
door	306	barber	382	Chipping hammer	672	floor	282
door	317, 318, 563	bosuns	21	stump	575	holder	282
door	193	dental	401	Chips quartz	51	Closers door	282, 283
door	342, 344	hydraulic	401	silica	51	door electric automatic	283
door	319	life guard	428	white marble	51	door electro magnetic	283
door	308	lifts	451	wood	626	Closet cedar	196
door	429	locker bench	367	Chloride accelerator concrete	75	door	251, 256
door	513	molding	194	calcium	599	pole	194
door	386	movie	392	Chlorination system	493	rod	369
door	126	office	416	Chlorosulfonated polyethylene	37	water	484, 487
door	306, 317	portable	395	Church bell	395	Closing coordinator door	286
door	318	rail demolition	166	equipment	403	Closure trash	421
door	318	seating	419	equipment demolition	376	Cloth hardware	621
door	358	Chalkboard	348	pew	420	Clothes dryer commercial	383
door	381	electric	349	Chute package	452	CMU	100
door	441	fixed	348	refuse	452	pointing	90
door	259	freestanding	350	rubbish	33	Coal tar pitch	208, 228
door	388	liquid chalk	348	Chutes	452	Coat brown	325
door	72	metal	349, 360	linen	452	glaze	343
door	141	portable	350	Cinema equipment	392	hook	362
door	214	sliding	349	Circuit-breaker	557	rack	369, 409
door	214	swing leaf	349	bolt-on	552	rack & wardrobe	369
door	323	wall hung	348	feeder section	552	scratch	325
door	77	Chamber anechoic	430	Circular rotating entrance door	269	Coated roofing foamed	231
door	93	decontamination	40, 45	saw	674	Coating bituminous	210, 632
door	784	echo	441	slipforms	775	ceramic	346
door	208	Chamfer strip	60	Circulating pump	504	concrete walls	345
door	93, 601	Channel carrier	318	Clamp water pipe ground	540	elastomeric	345
door	308	curb edging	128	Clamshell	583, 654	epoxy	77, 346, 632
door	632	frame	248	bucket	669	exterior steel	346

flood	229	omamental	160	block glazed	105	materials	
polyethylene	632	structural	126	block grout	93	membrane curing	
reinforcing	69	Combination device	546	block insulation	214	mix design	
roof	208	storm door	255, 258	block insulation insert	101	mixer	
rubber	212	Comfort station	438	block interlocking	105	mixes	
silicone	212	Command dog	24	block lintel	105	non-chloride accelerator	
spray	210	Commercial automatic opener	281	block pointing	345	pan fill stair	
structural steel	792	dishwasher	391	block partition	104	paper curing	
stucco walls	345	door	249, 254, 259	block planter	614	putty block	
trowel	210	folding partition	360	break ties	78	paver	
wall	345	gas water heater	483	brick	105	paving surface treatment	
water repellent	212	greenhouse	434	bridge	624	piers and shafts drilled	
waterproofing	210	lavatory	488	broom finish	76	piles prestressed	
Cocks gas	463	mail box	368	bucket	668	pipe	
Coffee urn	389	metal door	251	buggy	76, 668	pipe removal	
Cofferdam excavation	583	oil water heater	483	bullfloat	668	placement beam	
Cofferdams	602	refrigeration	429	hurlap rubbing	78	placement column	
Cohesion testing	15	safe	380	bush hammer finish	78	placement footing	
Coil cooling	527	toilet accessories	362	caisson	606	placement slab	
flanged	527	water heater	482, 483	cart	76, 668	placement wall	
Coiling door and grilles	261	water heater electric	482	cast in place	71, 74	placing	
grill	261	Commissioning	25	catch basin	642	plantable pavers precast	
Coiling-type counter door	261	Common brick	97	cellular	72	planter	
Coin operated gate	380	building brick	97	chimney	97	polishing	
Co extinguisher	366	mail	166	chlondne accelerator	75	post	
Coin-operated washer & dryer	383	Communicating lockset	284, 285	coloring	51	post-tensioned	
Cold mix paver	675	Communication system	566	column	71	pressure grouting	
roofing	227	Communications optical fiber	566	conversion	785	prestressed	
storage door	262	Compact fill	588	conveyer	668	prestressed precast	
Collection box lobby	368	Compaction	598	coping	112	processing	
concrete pipe sewage	637	backfill	818	core drilling	85	pump	
PVC pipe sewage	637	soil	587	crane and bucket	75	pumped	
sewage/drainage	639	structural	598	cribbing	622	ready-mix	
systems dust	660	test Proctor	16	curb	615	reinforcing	
Collector solar energy sys.	520, 521	vibrofloatation	819	curing	79, 613	removal	
Colonial door	255, 258	Compactor	402	curing compound	80	retaining wall	
wood frame	201	earth	669	cutout	32	retaining walls segmental	
Color floor	77	landfill	670	cylinder	15	retarder	
wheel	562	residential	385	dampproofing	52	sand	
Coloring concrete	51	waste	403	demo	29	sandblast finish	
Column	200	Compartments shower	357	demolition	32, 50	saw	
accessories formwork	60	toilet	353	direct shute	75	scarify	
aluminum	160	Compensation workers	12	drilling	86	septic tank	
base	168	Composite decking	181	equipment rental	668	shingle	
base aluminum	157, 160	door	249, 257	fiber reinforcing	75	short load	
base cast-iron	157	insulation	216	field mix	786	sidewalk	
base plate	132	metal deck	139	filled steel pile	605	slab	
block	101	rafter	181	finish	613	slab conduit	
bondcrete	309	Composition floor	326	flagpole	372	slab cutting	
brick	97	flooring	321, 326	float finish	70, 78	slabs X-ray	
cap aluminum	160	flooring removal	300	floor edger	668	small quantity	
concrete	71	Compound dustproofing	50	floor grinder	668	spreader	
concrete block	101	Compressed air equipment		floor patching	50	stair	
concrete placement	75	automotive	378	floor sawcutting	85	stair finish	
demolition	91	Compression seals	242	forms	775, 776	stair tread insert	
drywall	310	Compressive strength	15	furring	183	strengths	
fireproof	240	Compressor air	671	granolithic finish	77	tank	
formwork	53	tank mounted	500	grinding	78	testing	
lally	126	Computer air conditioning	526	grout	93	ties railroad	
laminated wood	188	floor	328	hand hole	644	tile	
lath	306	room carpet	328	hand mix	74	tilt-up	
plaster	308	Concealed closer	282	hand trowel finish	76	topping	
plywood formwork	53	Concrete	781-785	hardener	77	track cross ties	
precast	80	admixtures	50	hot weather	75	trowel	
precast concrete	80	asphalt	574	hydrodemolition	29	truck	
reinforcing	68	asphaltic	612	impact drilling	80	truck holding	
removal	91	beam	71	integral colors	50	unit paving slabs precast	
round fiber tube formwork	53	block	100, 102-104, 792	integral topping	77	utility vault	
round fiberglass formwork	53	block autoclave	100	integral waterproofing	51	vertical shoring	
round steel formwork	53	block back-up	100	joist	72	vibrator	
steel framed formwork	54	block bond beam	100	lance	673	wall	
stone	109	block column	101	lift slab	789	wall panel tilt-up	
structural shape	127	block decorative	101	lightweight	72, 74, 789	wall patching	
wood	177, 185, 200	block demolition	32	lightweight insulating	84	wall sawcutting	
Columns framing	177	block exterior	102	machine trowel finish	76	walls coating	
lightweight	126	block foundation	103	manhole	642, 644	water reducer	

water storage tanks	636	system cooling	499	pipe	641	Crimp termination cable	537
welding	76	system electronic	499	siding	222-224	Critical path schedule	14
wire	75	system split system	499	steel pipe	641	Cross brace	128
water pump	505	system ventilator	499	Cost control	14	wall	404
central pump	504	systems pneumatic	499	mark-up	13	Crown molding	193, 194
jet pump	505	tower	441	Cot prison	418	Crushed stone	574
test meter	505	valve heating	503	Counter bank	381	stone sidewalk	610
under	522	Controller time system	567	checkout	381	CSPE roof	230
unfired belt drive	522	Convection oven	390	door	261	Cubicle	358
unfired direct drive	522	Convactor hydronic heating	529	door coiling-type	261	curtain	358
unit air cooled	522	units	529	flashing	237	detention	280
unit general air	496	Conveyor	656	hospital	411	shower	486
unlive floor	324-326	ash	402	top	412	toilet	356
carpet & vinyl flooring	324	door	511	top demolition	166	track & hardware	358
carpet	325	material handling	656	window	368	Cultured stone	112
floor	536	system	452	Countertop backsplash	412	Culvert end	640
landscaping	535-538	Cooking equipment	384, 389	ceramic tile	413	reinforced	639
anchors	815	range	384	engineered stone	414	Cupola	371
and fitting flexible	544	Cooler	430	granite	413	Cupric oxychloride floor	326
and	540	beverage	387	laboratory	413	Curb	615
concrete slab	543	water	492	laminated	412	and gutter	615
electrical	540	Cooling coil	527	maple	412	asphalt	615
installation	541	control system	499	marble	413	builder	668
and PVC	543	tower	524	plastic-laminate-clad	412	concrete	615
and electrical	543	tower forced-draft	524	sink	485	edging	127, 616
and steel	543	tower louver	514	stainless steel	412	edging angle	127
and intermediate steel	540	towers fiberglass	524	Course drainage layers base	611	edging channel	128
rating	540	towers stainless	524	wearing	612	extruder	669
triple slab	543	Coping	109, 112	Court air supported	433	granite	108, 615
triple steel	540	aluminum	112	handball	432	inlet	616
traffic	23	clay tile	112	paddle tennis	399	precast	615
functional	403	concrete	112	racquetball	432	removal	29
monition brazed	540	removal	92	squash	432	roof	182
fire department	456	terra cotta	99, 112	Cove base	322	seal	610
fire pipe	456	Copper bus-duct	554	base ceramic tile	314	slipform paver	675
monitors motor	544	cable	536, 539	base terrazzo	325	terrazzo	324, 325
and flexible	475	downspout	235	molding	193	Curing blanket	79
and	475	drum trap	478	molding scotia	193	compound concrete	80
on	168	DWV tubing	470	Cover aluminum trench	156	concrete	79, 613
on	537	flashing	233, 234, 479	cast iron grate	156	concrete membrane	80
ramp	167	gutter	236	checkered plate	156, 157	concrete paper	80
and copper tubing	475	pipe	470	manhole	641	concrete water	79
and	537	reglet	237	pool	428	paper	217
on test	15	rivet	124	stadium	433	Current transformer	550
on tion aids	17	roof	232	stair tread	24	transformer cabinet	556
bar	678	salvage	463	tank	432	Curtain air	511
cables	157	shielded cable	535	trench	156	air barrier	511
cable	11	wall covering	329	walkway	371	cubicle	358
management fee	10	wire	538, 539	Covering wall	805	damper fire	507
photography	14	Core drill	15, 668	CPVC pipe	474	divider	397
air hole	586	drill bit	86	valve	466	gymnasium divider	397
temporary	22	drilling concrete	85	Crack cleaner	675	rod	362
ion	10	testing	15	filler	675	sound	441
inherent hazardous waste	37	Coreboard	512	Crane	656	stage	395
and nated soil	39	Cork floor	323	and bucket concrete	75	track	395
emergencies	11	insulation	430	climbing	676	vinyl	362
and hinge	288	tile	323	crawler	676	wall	270
and overhead	25	wall tile	329	crew daily	18	wall glass	270
and	374	Corner base cabinet	409	daily	18	wall glazed aluminum	270
and motor starter	554	bead	307, 313	hydraulic	676	Curtains blast	407
and	502	block	105	material handling	657	Custom casework	408
and	351, 395	guard	361	mobilization	575	Cut stone curbs	615
and	539	guard metal	361	rail	656	stone trim	109
and volume	507	protection	361	scale	373	Cutoff pile	574
and off-automatic	558	wall cabinet	409	tower	18, 676	Cutout counter	412
and	77, 94	Cornerboards PVC	204	truck mounted	676	demolition	32
and clean	78	Cornice drain	481	Crane bridge	656	slab	32
and PVC	94	molding	193, 194	Crash barriers	650	Cutter brush	669, 670
and rubber	94	painting	342	Crawler crane	676	Cutting asphalt	34
and masonry	77	stone	109	drill rotary	672	block	412
and sealant	78	Correspondence lift	452	shovel	670	concrete slab	85
and supply	503	Corridor sign	352	Crematory	402	masonry	34
and	558	Corrosion resistance	632	Crew daily crane	18	steel	117
and stop-start	558	resistant fan	509	forklift	18	torch	117, 674
and air compressor	500	resistant pipe	494	survey	24	wood	34
and boiler	499	Corrugated metal pipe	638, 641	Cribbing concrete	622	Cylinder concrete	15

- lockset 284
 recore 284, 285
- D**
- Daily crane 18
 Dairy case 387
 Damper 506
 assembly splitter 507
 fire curtain 507
 fireplace 365
 foundation vent 95
 multi-blade 506
 volume-control 506
 Dampproofing 211
 Darkroom 430
 door 263
 equipment 384
 lead lined 430
 revolving 430
 sink 384
 Dasher hockey 429
 Day gate 264
 Dead lock 284
 Deadbolt 284, 286
 Deadlocking latch 285
 Deaerators 502
 Deciduous shrub 629
 Deck drain 479
 edge form 140
 framing 180
 metal floor 141
 roof 185, 186
 slab form 140
 wood 185
 Decking 798
 cellular 141
 composite 181
 floor 139-141
 form 140
 roof 139
 Deconstruction building 34
 building components 35
 material handling 37
 Decontamination asbestos area 42
 chamber 40, 45
 enclosure 40, 42, 45
 equipment 40
 Decorative beam 200
 block 101
 fence 620
 Decorator device 545
 switch 545
 Deep freeze 384
 seal trap 478
 therapy room 442
 Deep-longspan joist 136
 Dehumidifier 380, 672
 Delicatessen case 387
 Delineator barrier 650
 Delivery charge 21
 Deluge valve assembly sprinkler 458
 Demo air supported structures 424
 concrete 29
 footing & foundation building 31
 garden house 424
 geodesic domes 424
 greenhouses 424
 hangars 424
 lightning protection 424
 pre-engineered steel bldgs 425
 silos 425
 sound control 425
 special purpose rooms 425
 specialties 348
 storage tank 426
 swimming pool 426
 tension structures 427
 thermal & moist protection 208
 X-ray/radio freq protection 427
 Demolish remove pavement and curb 29
 Demo 31, 92, 301, 463, 574, 773
 air compressor 376
 asbestos 42
 bank equipment 376
 barber equipment 376
 baseboard 166
 boiler 496
 bowling alley 377
 brick 91, 300
 cabinet 166
 casework 166
 ceiling 300
 central vacuum 376
 ceramic tile 301
 checkout counter 376
 chimney 91
 church equipment 376
 column 91
 commercial dishwasher 377
 concrete 32, 50
 concrete block 32
 cooking equipment 377
 crematory 376
 darkroom equipment 377
 dental equipment 377
 detection equipment 376
 disappearing stairway 377
 dishwasher hood 377
 disposal 32
 door 246
 drywall 300
 ductwork 496
 electrical 534
 equipment 376
 explosive implosive 31
 fencing 30
 fire protection system 377
 fireplace 92
 flashing 42
 flooring 300
 food case 376
 food delivery cart 377
 food dispensing equip 377
 food preparation equip 377
 food storage equipment 377
 food storage shelving 377
 framing 163
 fume hood 377
 garbage disposal 377
 glass 246
 granite 92
 gutter 208
 gutting 34
 hammer 669
 health club equipment 377
 hood & ventilation equip 377
 HVAC 496
 hydraulic gate 376
 ice machine 377
 implosive 31
 joist 163
 lath 300
 laundry equipment 376
 library equipment 376
 loading dock equipment 376
 lubrication equip auto 376
 masonry 32, 91, 301
 medical equipment 377
 metal 116
 metal stud 301
 millwork 166
 millwork & trim 166
 mold contaminated area 46
 movie equipment 376
 paneling 166
 parking equipment 376
 partition 301
 pavement 29
 physical therapy 377
 plywood 300, 301
 plenum 301
 plumbing 463
 plywood 300, 301
 post 164
 rafter 164
 railing 166
 residential water heater 377
 roofing 42, 209
 saw cutting 34
 selective building 31
 sewage pumping system 376
 sewage treatment 376
 shooting range 377
 site 29
 sound system 376
 spray paint booth 376
 stage equipment 376
 steel 116
 steel window 246
 stucco 301
 surgical light 377
 terra cotta 302
 terrazzo 301
 tile 300
 torch cutting 34
 trim 166
 vault day gate 376
 vault door and frame 376
 vocational shop equip 377
 wall 301
 walls and partitions 301
 waste handling equipment 376
 wastewater treatment 376
 water softener 377
 whirlpool bath 377
 window 246
 window & door 246
 wood 300
 wood framing 162
 wood 359
 Demountable partition 401
 Dental equipment 480
 metal interceptor 401
 office equipment 401
 Depository night 381
 Derrail railroad 648
 Derrick crane guyed 677
 crane stillleg 677
 Desk 418
 Detection intrusion 570
 leak 572
 probe leak 572
 system 570
 tape 633
 Detector explosive 570
 infrared 570
 metal 570
 motion 570
 smoke 572
 temperature rise 571
 ultrasonic motion 570
 Detectors fire & heat 571
 Detention cubicle 280
 doors and frames 264
 equipment 264, 381
 Developing tank 384
 Device & box wiring 384
 anti-siphon 384
 combination 384
 decorator 384
 exit 384
 GFI 384
 panic 384
 receptacle 384
 residential 384
 wiring 384
 Dewater 384
 pumping 384
 Dewatering 384
 equipment 384
 Diamond lath 384
 Diaper station 384
 Diaphragm pump 384
 Diesel generator 384
 generator set 384
 hammer 384
 tugboat 384
 Diesel-engine-driven generator 384
 Diffuser ceiling 384
 Opposed blade damper 384
 perforated aluminum 384
 rectangular 384
 steel 384
 T-bar mount 384
 Digital movie equipment 384
 Dimensions and weights of sheet steel 384
 Dimmer switch 384
 Direct expansion A/C 384
 shute concrete 384
 Directional drill horizontal sign 384
 Directory 384
 board 384
 building 384
 Disappearing stairs 384
 Disc harrow 384
 Discharge hose 384
 Dishwasher commercial 384
 residential 384
 Diskette safe 384
 Dispenser hot water 384
 napkin 384
 soap 384
 ticket 384
 toilet tissue 384
 towel 384
 Dispensing equipment food 384
 Dispersion nozzle 384
 Displacement caisson 384
 Display case 384
 Disposable bag 384
 Disposal 384
 asbestos 384
 charges 384
 field 384
 garbage 384
 or salvage 384
 waste 384
 Distiller medical 384
 water 384
 Distribution box 384
 pipe water 384
 switchboard 384
 Distributor asphalt 384
 Ditching 384
 Divider curtain 384
 strip terrazzo 384
 Diving board 384
 stand 384
 Dock board 384
 board magnesium 384

barrier	379	frame exterior wood	200	stainless steel (access)	259	front wood	410
equipment	379	frame grout	93	steel	248, 250, 265, 436, 801	kitchen	408
leak	379	frame interior	201	steel ballistic	263	track	410
light	379	frame lead lined	442	steel detention	264	type cabinet	411
long	379	frame exterior	257	steel louver	297	wood	410
metal	379	garage	265	steel sliding	251	Drawings as-built	25
metal	379	glass	250, 268, 269	stop	268, 285	Dredge	654
metal	24	hand carved	252	storm	247	hydraulic	654
metal	481	handle	410	swinging glass	269	Dressing unit	418
metal	489	hangar	263, 440	switch burglar alarm	570	Drill auger	29
metal	270	hardware	281	telescoping	266	console dental	401
metal	807	hardware accessory	286	threshold	201	core	15, 668
metal	438	hollow metal	248	tin clad	255	earth	28, 606
metal	291	hollow metal exterior	251	traffic	267	hole	599
metal	256	industrial	201	varnish	339	quarry	672
metal	265	jamb molding	195	vault	264	rig	28
metal folding	360	kennel	260	vertical lift	266	rig mobilization	575
metal	433	kick plate	288	weatherstrip	290	rock	28, 582
metal	251	knob	285	weatherstrip garage	290	shop	394
metal double	267	labeled	250, 254	wire partition	358	steel	672
metal swing	267	louver	297	wood	251, 252, 254	track	671
metal-framed entrance	269	mahogany	252	wood ballistic	263	wood	168
metal ceiling	261	manufactured hardwood	410	wood double acting swing	267	Drilled conc. piers and shafts	607
metal access	259	casework	410	wood fire	254	concrete piers uncased	607
metal window mats	246	metal	247, 251, 265, 437	wood panel	255	pier	606
metal entrance	269	metal access	259	Doorbell system	557	Drilling and blasting bulk	582
metal entrance	269	metal fire	250	Doors & windows int. paint	339, 340	and blasting rock	582
metal residential	548	metal toilet component	354	and frames detention	264	concrete	86
metal	250, 256	metal-faced wood	255	Dormer gable	183	concrete impact	86
metal closet	256	mirror	294	Dormitory furniture	418	horizontal	632
metal	256	molding	194	Double acting swing door	267	plaster	304
metal	202	moulded	255	brick	98	quarry	582
metal	250	opener	246, 262, 266, 281	hung window	272, 273, 275	rig	668
metal/cellar	259	operator	246, 281	precast concrete tee beam	81	rock bolt	582
metal resistant	381	overhead	265, 266	wall pipe	643	steel	117
metal	282, 285	overhead commercial	265	weight hinge	287	Drinking hubbly	492
metal	408, 410	panel	255	Double-hung window		fountain	492
metal	257	paneled	250	metal-clad	274	fountain deck rough-in	492
metal PVC	204	partition	359	Dove-tail anchor	60	fountain floor rough-in	492
metal	410	passage	256, 258	Dowel cap	69	fountain handicap	492
metal hoist	265	plastic laminate casework	408	reinforcing	69	fountain support	489
metal	365	plastic-laminate toilet	355	sleeve	69	fountain wall rough-in	492
metal	282, 283	prefinished	252	Downspout	235, 236, 371	Drip edge	238
metal	251, 256	pre-hung	257, 258	aluminum	235	edge aluminum	238
metal coordinator	286	prison	264	copper	235	Drip-proof motor	564
metal storage	262	protector	282	demolition	208	Driven pile	605
metal storm	255	pull	286	elbow	236	Driver post	675
metal	249, 254	refrigerator	262	lead coated copper	236	sheeting	672
metal floor	259	release	567	steel	236	Drive-up window	581
metal	249, 257	removal	246	strainer	235	Driveway	610
metal or	511	residential	201, 250, 255	Dozer	670	gate security	264
metal	261	residential garage	265	backfill	587	removal	29
metal	263	residential steel	250	excavation	583	security gate	264
metal revolving	263	residential storm	247	Draft inducer breeching	516	security gate opener	264
metal	246	revolving	263, 269, 433	Draft-induction fan	516	security gate solar panel	264
metal	250	revolving entrance	269	Dragline	583, 654	Drip pan ceiling	517
metal acting swing	267	rolling	261	bucket	669	Drum trap copper	478
metal access	507	roof	289	Drain	478, 481	Dry cleaning equipment	582
metal	255	rosewood	252	board	211	fall painting	344
metal	365	saint	431	deck	479	pipe sprinkler head	458
metal automatic closers	283	seal	379	dome	481	wall leaded	442
metal magnetic closers	283	sectional	265	facility trench	481	Drycleaner	382
metal	255, 268	sectional overhead	265	floor	479	Dryer commercial clothes	383
metal strip	267	security vault	264	main	481	darkroom	384
metal	257	shower	557	pipe	586	hand	362
metal	257	side light	257	sanitary	479	industrial	382
metal	254, 262, 571	sightlight	250	scupper	481	receptacle	547
metal access	259	still	195, 200, 286	sediment bucket	479	residential	385
metal	365	sliding	251	shower	478	vent	586
metal	267	sliding aluminum	260	trench	481	Dry-pipe sprinkler system	551
metal	260	sliding entrance	269	Drainage accessory	236	Dry-type transformer	551
metal	253, 255	sliding glass	260, 261	pipe	494, 637, 639	Drywall	310
metal	252	sliding glass vinyl-clad	260	trap	478	accessories	313
metal	360	sliding panel	270	Drains roof	481	column	310
metal accordion	256	special	259, 265	Drainage hardware	406	cutout	32
metal	247, 248	stain	339	Drawer front plastic laminate	408	demolition	300, 301

Index

finish	201	E	demolition	534	lock	7
framing	247		fee	10	screen	394
gypsum	310	Earth auger	laboratory	394	strip	394
gypsum high abuse	313	compactor	pole	644	Entry canopy	77
high abuse	313	drill	tubing	540	EPDM adhesive	353
nail	166	rolling	wire	538	roof	353
painting	342, 344	scraper	Electronic air cleaner	516	Epoxy anchor	353
partition	303	vibrator	closer	282	coated reinforcing	353
partition NLB	302	Earthwork	control system	499	coating	353
prefinished	311	equipment	markerboard	350	fiberglass wound pipe	353
removal	301	equipment rental	Electrostatic painting	342	floor	353
screw	314	haul	Elevated conduit	541	grating	353
Duck tarpulin	22	Eave overhang	floor	72	grout	315, 316
Duct accessories	506	Ecclesiastical equipment	installation add	462	lined silo	353
connection fabric flexible	506	Echo chamber	pipe add	462	terrazzo	353
electric	543, 554	Economy brick	slab	72	wall coating	353
electrical underfloor	544	Edge drip	slab formwork	54	Equipment	353
fitting trench	544	Edger concrete floor	slab reinforcing	68	athletic	353
fitting underfloor	544	Edging	water storage tanks	636	automotive	353
flexible	507	aluminum	water tank	636	bank	353
flexible insulated	508	angle curb	Elevating scraper	585	barber	353
flexible noninsulated	507	curb	Elevator	446, 808	basketball	353
furnace	520	Educational casework	cab finishes	448	cell	353
grille	328	T.V. studio	controls	449	cinema	353
heater electric	527	Efficiency flush valve high	electric traction freight	446	cleaning & disposal	353
humidifier	531	Effluence testing	fee	10	clock	353
HVAC	505	Eggcrate ceiling	freight	446	darkroom	353
insulation	498	EIES	hydraulic freight	447	demolition	353
liner	508	Ejector pump	hydraulic passenger	448	dental	353
liner non-fibrous	508	Elastomeric coating	options	449	dental office	353
mechanical	505	liquid flooring	passenger	446	detention	353
silencer	507	roof	residential	447	dry cleaning	353
steel trench	544	sheet waterproofing	shaft wall	302	earthwork	353
thermal insulation	498	Elbow downspout	Embossed print door	255	ecclesiastical	353
trench	543	pipe	Emergency call system	567	fire	353
underfloor	544	Electric appliance	equipment laboratory	394	food preparation	353
underground	644	backstop	lighting	561, 562	foundation formwork	353
utility	644	ballast	lighting unit	561	gymnasium	353
Ductile iron fitting	633	baseboard heater	shower	491	health club	353
iron fitting mech joint	634	bed	Employer liability	12	hospital	353
iron grooved joint	472	boiler	EMT	540	ice skating	353
iron pipe	633	cabinet	Emulsion adhesive	323	installation	353
Ductwork	505, 811	cable	asphaltic	626	insulation	353
aluminum	505	capacitor	pavement	610	insurance	353
demolition	496	chalkboard	penetration	611	laboratory	353
fabric coated flexible	507	commercial water heater	sprayer	672	laboratory emergency	353
fabricated	505	duct	Encapsulation asbestos	43	laundry	353
fiberglass	506	duct heater	pipe	43	loading dock	353
galvanized	505	dumbwaiter	Encasement pile	605	medical	353, 400
laboratory	393	feeder	Encasing steel beam formwork	52	medical sterilizing	353
metal	505	fixture	Enclosed bus assemblies	554	mobilization	353
rectangular	505	fixture exterior	Enclosure acoustical	441	pad	353
rigid	505	furnace	bathtub	358	parking	353
Dumbbell	396	generator	commercial telephone	353	parking collection	353
waterstop	64	heater	decontamination	40, 42, 45	parking control	353
Dumbwaiter electric	446	heating	shower	357	parking gate	353
manual	446	hinge	swimming pool	434	parking ticket	353
Dump charges	33	hoist	telephone	353	playfield	353
truck	671	lamp	End culvert	640	playground	353
Dumpster	33, 773	log	grain block floor	320	refrigerated storage	353
Dumptruck offhighway	671	metallic tubing	Endwall overhang	436	rental	353
Duplex receptacle	557	meter	Energy circulator air solar	521	rental concrete	353
Dust barrier	23	motor	system controller solar	521	rental earthwork	353
collection systems	660	panelboard	system heat exchanger solar	521	rental general	353
collector shop	394	pool heater	Engineer brick	98	rental highway	353
Dustproofing	77	service	Engineered stone countertop	414	rental lifting	353
compound	50	stair	Engineering fee	10, 763	rental marme	353
Dutch door	255	switch	Engraved panel signage	352	rental wellpoint	353
oven door	365	traction freight elevator	Entrance aluminum	269	safety eye face	353
DWV pipe ABS	473	utility	and storefront	269	security and vault	353
PVC pipe	473	water cooler	canopy	371, 436	shop	353
tubing copper	470	water heater residential	door	255, 258, 268	stage	353
		Elect. & telephone underground	door aluminum-framed	269	swimming pool	353
		box	door fiberglas glass	257	theater and stage	353
		cable	floor mat	415	waste handling	353
		conduit	frame	201	Erosion control synthet	353

450, 809	plaster	309	wall	510	panel	22, 223, 331
152	pre-hung door	258	wall exhaust	510	panel skylight	438
531	PVC molding	204	wiring	549	planter	421
801	residential door	255	Farm type siding	223	reinforced ceiling	429
762	roll-up shutter	370	Fascia board demolition	163	reinforced plastic panel	330
628	shutter	201	metal	235	round bar	203
628	siding painting	335	PVC	204	round tube	203
400	signage	352	wood	181, 194	shade	408
582	sprinkler	625	Fast food equipment	389	single hung window	280
583	steel coating	346	Fastener timber	166	square bar	203
817	surface preparation	332	wood	167	square tube	203
577	tile	315	Faucet & fitting	486, 489	stair tread	203
580	trim paint	337	bathroom	486	steeple	371
577, 582, 816	wood door frame	200	laundry	486	tank	500
582	wood frame	201	lavatory	486	threaded rod	203
585	Extinguisher ABC	366	Fee architectural	10	trash receptacle	421
583	chemical dry	366	engineering	10	trench drain	481
583	CO ₂	366	Feeder electric	554	wall lamination	346
578, 581, 587	fire	366	section branch circuit	552	waterproofing	210
587	installation	366	section circuit-breaker	552	wide flange beam	203
627	presurized fire	366	section frame	552	window	280
585	standard	366	section switchboard	552	wool	214
638	Extra work	13	Feller buncher	669	Fibers steel	71
581	Extruder curb	669	Felt	229	synthetic	71
578	Extrusion aluminum	133	asphalt	227, 229	Field disposal	638
577, 580	Eye bolt screw	66	carpet pad	327	mix concrete	786
675	wash fountain	491	tarred	229	office	17
668	wash portable	491	waterproofing	210	office expense	17
521	Eye/face wash safety equipment	491	Fence aluminum	619	personnel	12
396			and gate	618	samples	46
396			board batten	622	seeding	627
396			cedar	621	Fieldstone	107
396			chain link	23, 621	Fill	587, 588
385, 393			chain link industrial	618	by borrow	588
514			chain link residential	619	by borrow & utility bedding	588
510			decorative	620	floor	72
411			helical topping	621	gravel	574, 588
570			mesh	618	Filled steel pile concrete	605
283			metal	618	Filler block	343
562			misc. metal	621	crack	675
562			picket paint	334	joint	242
121			plywood	23	strip	289
61, 237, 307, 502			security	621	Fillet welding	117
244			snow	38	Film equipment	384, 392
502			steel	620	polyethylene	626
237			temporary	23	security	295
244			tennis court	620	Filter air	515
237			treated pine	622	grille	513
237			tubular	620	mechanical media	515
121			wire	23, 621	stone	600
502			wood rail	621	swimming pool	493
502			Fences	334	Filtration air	40
13			Fencing demolition	30	equipment	428
562			wire	621	Fine grade	627
562			Fiber cement formboard	59	Finish carpentry	408
570			cement siding	227	concrete	613
570			optic cable	566	floor	321, 344
31			reinforcing concrete	75	grading	577
582			Fiberboard insulation	215	Keene cement	308
77, 610			Fiberglass angle	202	lime	92
345			area wall cap	372	nail	166
675			bench	421	refrigeration	429
673			blown-in	214	Finishes wall	329
201			castings	202	Finishing floor concrete	76
102			ceiling board	317	wall concrete	78
257			cooling towers	524	Fir column	200
200			cross	404	floor	321
251			door	257, 265	molding	194
563			ductwork	506	roof deck	185
563			flagpole	572	roof plank	185
217			flat sheet	202	Fire & heat detectors	571
217			floor grating	204	alarm	571
563			formboard	59	alarm panel and devices	571
194			grating	203	brick	111
289			handrail	203	call pullbox	571
336			insulation	212-214, 437, 498	clay	111

- damper curtain type 507
 door 251, 254, 262, 571
 door frame 248
 door metal 250
 door wood 254
 equipment 457
 equipment cabinet 365
 escape 152
 escape balcony 152
 escape stairs 152
 extinguisher 366
 extinguisher portable 365
 extinguisher wheeled unit 366
 extinguishing system 458
 horn 571
 hose 457
 hose adapter 457
 hose nozzle 457
 hose rack 457
 hose storage cabinet 365
 hose valve 457
 hydrant 635
 hydrant for building 456
 protection 365
 protection kitchen 515
 pump 459
 rated tile 98
 resistant drywall 310, 311
 resistant wall 303
 retardant pipe 494
 signal bell 571
 suppression automatic 458
 Firebrick 111
 Fire-department connection 456
 Fireplace accessory 364
 box 111
 built-in 364
 chimney 364
 damper 365
 demolition 92
 door 365
 form 364
 free standing 364
 mantel 199
 mantel beam 199
 masonry 111
 prefabricated 364
 Fireproofing 240
 plaster 240
 plastic 240
 sprayed cementitious 240
 Firestop wood 178
 Firestopping 240, 800
 Fitting bus-duct 554
 ductile iron 633
 grooved joint 471
 grooved joint pipe 472
 poke-thru 541
 PVC 634
 underfloor duct 544
 vent chimney 517
 waterstop 64
 Fixed blade louver 514
 booth 417
 chalkboard 548
 end caisson piles 606
 roof tank 501
 tackboard 350
 vehicle delineators 650
 Fixture ballast 561
 bathroom 484-486
 carrier/support 489
 electric 560
 explosionproof 562
 fluorescent 560
 incandescent 561
 incandescent vaporlight 561
 interior light 560
 plumbing 480, 484, 492, 504, 637
 removal 463
 residential 548
 sodium high pressure 563
 support handicap 489
 vandalproof 561
 Flagging 320, 614
 slate 615
 Flagpole 372
 aluminum 372
 fiberglass 372
 foundation 372
 structure mounted 373
 wall 373
 Flange beam fiberglass wide 203
 Flanged coil 527
 Flasher barrels 672
 barricade 672
 Flashing 233-235
 aluminum 224, 233, 479
 asphalt 233
 butyl 234
 cement 208
 copper 233, 234, 479
 counter 237
 demolition 42
 fabric 233
 fabric-backed 233
 laminated sheet 233
 lead coated 234
 masonry 233
 mastic-backed 233
 membrane 229
 metal 437
 neoprene 234
 paper-backed 234
 plastic sheet 234
 PVC 234
 sheet metal 233
 stainless 233
 valley 218
 vent 479
 Flat seam sheet metal roofing 232
 sheet fiberglass 202
 Flatbed truck 671, 674
 truck crane 676
 Flexible conduit & fitting 544
 connector 475
 door 267
 duct 507
 duct connection fabric 506
 ductwork fabric coated 507
 insulated duct 508
 metal hose 475
 noninsulated duct 507
 plastic netting 373
 sign 352
 Float finish concrete 76, 78
 glass 292
 Floater equipment 12
 Floating dock 654
 floor 319
 pin 287
 roof tank 501
 wood piers 654
 Flood coating 229
 Floodlamp exterior 563
 Floodlight pole mounted 563
 trailer 672
 tripod 672
 Floor 320
 abrasive 77
 access 328
 acid proof 320
 acrylic 326
 adhesive removal 78
 asphalt block 614
 brick 320, 614
 carpet 327
 ceramic tile 314
 check 286
 cleaning 25
 cleanout 467
 closer 282
 color 77
 composition 326
 concrete finishing 76
 conductive 324-326
 cork 323
 decking 139-141
 door 260
 door commercial 259
 drain 479
 elevated 72
 end grain block 320
 epoxy 325, 326
 expansion joint 244
 fill 72
 fill lightweight 72
 finish 344
 flagging 615
 framing removal 32
 grating 204
 grating aluminum 154
 grating fiberglass 204
 grating steel 155
 grinding 78
 hardener 50
 hatch 260
 heating radiant 530
 honing 79
 insulation 212
 marble 109
 mastic 326
 mat 415
 mat entrance 415
 nail 167
 neoprene 326
 oak 321
 paint 341
 paint & coating interior 341
 paint removal 78
 parquet 321
 pedestal 328
 plank 185
 plate stair 152
 plywood 186
 polyacrylate 326
 polyester 326
 polyethylene 328
 polyurethane 327
 portable 395
 quarry tile 316
 refrigeration 430
 register 513
 removal 31
 resilient 323
 rubber 323
 sander 674
 scupper 481
 sealer 51
 slate 110
 sleeper 182
 stair 341
 subfloor 186
 terrazzo 324, 805
 tile or terrazzo base 325
 tile terrazzo 325
 topping 77
 transition strip 327
 underlayment 326
 varnish 78
 vinyl 614
 vinyl sheet 320
 wood 327
 wood athletic 314
 wood composition 326
 Flooring bamboo 326
 composition 326
 conductive rubber & vinyl 326
 demolition 326
 elastomeric liquid 326
 miscellaneous brick 326
 quartz 326
 Flow meter 326
 Flue chimney 326
 chimney metal 326
 liner 326
 prefab metal 326
 screen 326
 tile 326
 Fluid heat transfer 326
 Fluorescent fixture 326
 Fluoroscopy room 326
 Flush automatic 326
 bolt 326
 door 326
 HET 326
 metal door 326
 tube framing 326
 valve 326
 wood door 326
 Flying truss shoring 326
 FM200 fire extinguisher 326
 Foam board insulation 326
 core DWV ABS pipe 326
 insulation 326
 pipe covering 326
 roofing 326
 spray rig 326
 Foamed coated roofing 326
 Foam-water system components 326
 Fog seal 326
 Foil aluminum 215, 217
 metallic 321
 Folder laundry 326
 Folding accordion door 326
 accordion partition 326
 bench 326
 door 326
 door shower 326
 gate 326
 table 326
 Food delivery cart 326
 dispensing equipment 326
 mixer 326
 preparation equipment 326
 service equipment 326
 storage metal shelving 326
 warmer 326
 Foot valve 326
 Football goalpost 326
 scoreboard 326
 Footing concrete placement 326
 formwork continuous 326
 formwork spread 326
 keyway 326
 keyway formwork 326
 reinforcing 326
 removal 326
 spread 326
 Forced-draft cooling tower 326
 Forest stewardship council 326
 Forged valves 326
 Forklift 326
 crew 326

arm edge	140	wall liner	58	roof rafters	181	reinforcing	69
deck	140	wall lintel	58	roof soffits	150	roof	222
fire	364	wall pilaster	59	roof truss	188	steel reglet	237
fuel	775	wall plywood	57	sill & ledger	182	Galvanizing	346
metal	51	wall prefab plywood	58	sleepers	182	lintel	129
metal	101	wall sill	58	slotted channel	128	metal in field	346
metal fiber cement	59	wall steel framed	59	soffit & canopy	182	metal in shop	116
mass	59	Fossil fuel boiler	518	stair stringer	179	Gang wall formwork	58
fiber	59	Foundation caisson	606	steel	131	Gantry crane	657
fiber	776	chimney	71	suspended ceiling	177	Garage	439
concrete	776	concrete block	103	timber	185	door	265
beam and girder	52	flagpole	372	treated lumber	182	door residential	265
bottom	53	mat	73	tube	267	door weatherstrip	290
brick	53	mat concrete placement	75	wall	182	public parking	439
brick	54	pile	607	web stiffeners	147	residential	439
brick	53	scale pit	373	window	437	Garbage disposal	385, 391
brick accessories	60	vent	95	window wall	267	Garden house	439
brick plywood	53	wall	103	wood	176-179, 181-183, 185	house demo	424
brick round fiber tube	53	Foundations underpin	602	wood plate	183	Gas cocks	463
brick round fiberglass	53	Fountain drinking	492	Freestanding chalkboard	350	connector	475
brick round steel	53	eye wash	491	Freeze deep	384	fired boiler	518
brick steel framed	51	face wash	491	Freezer	387, 430	fired furnace	519
brick footings	55	lighting	493	Freight elevator	446	fired infrared heater	528
brick slab	54	nozzle	493	elevator hydraulic	447	fired space heater	520
brick steel beam	52	pump	493	elevators	808	furnace	520
brick foundation	55	wash	488	French exterior door	257	generator	558
brick keyway	55	Frame baked enamel	248	Friction pile	604, 608	generator set	558
brick wall	58	door	247, 248	Frieze PVC	204	heat air conditioner	525
brick ion	56	drywall	247	Front end loader	583	incinerator	402
brick ion island	56	entrance	201	plastic laminate drawer	408	log	364
brick	52	exterior wood door	200	vault	264	pipe	643
brick beam	56	fire door	248	FRP panel	330	station formwork	56
brick accessories	61	grating	156	Fryer	389	station island formwork	56
brick concrete	62	labeled	248	Fuel storage tank	501	station tank	500
brick concrete	59	metal	247	tank	500	stop valve	463
brick beam	52	metal butt	248	Full vision glass	293	vent	516
brick masonry	777	scaffold	19	Fume hood	393	water heater commercial	483
brick base	56	steel	247	Furnace duct	520	water heater residential	483
brick foundation	56	trench grating	156	electric	519	water heaters instantaneous	483
brick welded	64	welded	248	gas	520	water heaters tankless	483
brick	64	window	274	gas fired	519	Gas-fired duct heater	520
brick	55	wood	409	hot air	519	Gasket neoprene	242
Frames shoring	63	oil fired	519	oil fired	519	Gaskets joint	242
Framing aluminum	133	wall	520	wall	520	Gas/oil combination boiler	518
anchor	168	Furnishing library	418	Furnishing library	418	Gasoline generator	558
band joist	146	Furnishings site	421	office	416	gasket	501
beam & girder	177	Furniture	416	office	416	Gate chain link	619
boxed headers/beams	146	dormitory	418	restaurant	417	day	264
bracing	148	hospital	419	school	418	fence	619
bridging	149	hotel	417	security	418	folding	358
canopy	126	library	419	switch branch circuit	552	opener driveway security	264
ceiling	177	office	416	Fusion machine butt	672	parking	378
columns	177	restaurant	417	ceiling	183, 304, 306	security	358
deck	180	channel	304, 313	channel	304, 313	security driveway	264
demolition	163	concrete	183	concrete	183	swing	619
heavy	185	masonry	183	masonry	183	valve	496, 497
joist	178	metal	304	metal	304	valve soldered	464
laminated	188	steel	304	steel	304	Gauging plaster	308
lightweight	128	wall	183, 304	wall	183, 304	General air conditioners	496
lightweight angle	128	wood	183	wood	183	boiler	462
lightweight channel	128	Fusible link closer	282	Fusible link closer	282	contractor's overhead	766
lightweight junior beam	128	switch branch circuit	552	switch branch circuit	552	equipment rental	671
lightweight tee	128	Fusion machine butt	672	Fusion machine butt	672	fill	588
lightweight zee	128	Gabion box	599	Gabion box	599	Generator diesel	558
load-bearing stud partition	143	retaining walls stone	623	retaining walls stone	623	electric	672
load-bearing stud wall	143	Gable dormer	183	Gable dormer	183	emergency	558
metal joist	147	Galley septic	638	Galley septic	638	gas	558
metal roof parapet	149	Galvanized ductwork	505	Galvanized ductwork	505	gasoline	558
metal roof	149	plank grating	156	plank grating	156	set	558
metal roof truss	151					steam	399

G

- joist 139
 reinforcing 68
 wood 177, 185
 Glass 292, 294, 295
 acoustical 296
 and glazing 296
 head 267
 bevel 292
 block 105
 block skylight 281
 bulletin board 350
 bulletproof 296
 curtain wall 270
 demolition 246
 door 260, 268, 269
 door astragal 289
 door shower 357
 door sliding 261
 door swinging 269
 faceted 292
 fiber rod reinforcing 69
 float 292
 full vision 293
 heat reflective 293
 insulating 293
 laminated 296
 lead 412
 lined water heater 386
 low emissivity 292
 mirror 294, 362
 mosaic 316
 obscure 293
 patterned 293
 pipe 494
 reduce heat transfer 293
 reflective 294
 safety 293
 sandblast 292
 sheet 294
 shower stall 357
 solar film 295
 spandrel 294
 tempered 292
 tile 294
 tinted 292
 vinyl 295
 window 294
 window wall 294
 wire 294
 Glassware washer 493
 Glaze coat 343
 Glazed aluminum curtain wall 270
 block 105
 brick 98
 ceramic tile 314
 concrete block 105
 wall coating 345
 Glazing 292
 application 293
 plastic 295
 polycarbonate 295
 productivity 802
 Globe valve 497
 valve bronze 464
 Glove bag 41
 box 393
 Glued laminated 188
 Goalpost 399
 football 399
 soccer 399
 Golf shelter 398
 tee surface 328
 Gore line 617
 Grab bar 362
 Gradall 583, 609
 Grade beam concrete placement 75
 beam formwork 56
 fine 627
 Grader motorized 669
 Grading 577, 594
 Graffiti resistant treatment 345
 Grandstand 435
 Granite 108
 building 108
 chips 626
 conductive floor 326
 countertop 413
 curb 108, 615
 demolition 92
 indian 616
 paver 108
 paving block 615
 sidewalk 615
 Granolithic finish concrete 77
 Grass cloth wallpaper 329
 lawn 627
 seed 627
 surfacing artificial 618
 Grating aluminum 154
 aluminum floor 154
 aluminum mesh 155
 aluminum plank 155
 area wall 372
 area way 372
 fiberglass 203
 fiberglass floor 204
 floor 204
 frame 156
 galvanized plank 156
 plank 156
 stainless bar 155
 stainless plank 156
 stair 152
 steel 155
 steel floor 155
 steel mesh 155
 Gravel bankrun 574
 base 611
 fill 574, 588
 pack well 637
 pea 626
 roof 51
 stop 235
 Gravity retaining wall 622
 Grease interceptor 479
 trap 479
 Green roof membrane 221
 roof soil mixture 221
 roof system 221
 Greenhouse 434
 air supported 433
 commercial 434
 cooling 434
 geodesic hemisphere 434
 residential 434
 Greenhouses demo 424
 Grd spike 168
 Gndle 390
 Grill coiling 261
 Grille air return 513
 aluminum 513
 decorative wood 199
 duct 328
 filter 513
 jointing 341
 plastic 513
 side coiling 261
 top coiling 261
 window 277
 Grinder concrete floor 608
 pump system 480
 shop 394
 system pump 480
 Grinding concrete 78
 floor 78
 Grooved block 101
 joint ductile iron 472
 joint fitting 471
 joint pipe 471
 Ground 183
 box hydrant 477
 clamp water pipe 540
 cover plants 628
 face block 101
 fault protection 550
 rod 539
 socket 398
 water monitoring 16
 wire 540
 Grounding 539
 & conductor 535-538
 wire brazed 540
 Group shower 488
 wash fountain 488
 Grout 93
 cavity wall 93
 cement 93
 concrete 93
 concrete block 93
 door frame 93
 epoxy 315, 316, 601
 metallic non-shrink 84
 non-metallic non-shrink 84
 pump 674
 tile 314
 topping 84
 wall 93
 Grouted bar 70
 strand 70
 Guard corner 361
 gutter 237
 house 439
 lamp 564
 service 24
 snow 239
 wall 361
 window 158
 Guardrail scaffold 19
 temporary 23
 Guards wall & corner 361
 Guidance inertial 28
 Guide rail 650
 rail cable 650
 rail removal 30
 rail timber 650
 rails vehicle 650
 Guide/guard rail 650
 Gunite 79
 drymix 79
 mesh 79
 Gutter 237, 437
 aluminum 236
 copper 236
 demolition 208
 guard 237
 lead coated copper 237
 monolithic 615
 stainless 237
 steel 237
 strainer 237
 valley 437
 vinyl 237
 wood 237
 Gutting 34
 demolition 34
 Guyed derrick crane 677
 tower 645
 Gym floor underlayment 322
 mat 32
 Gymnasium divider curtain 37
 equipment 39
 floor 321, 329
 squash court 432
 Gypsum block demolition 32
 board 36
 board accessories 313
 board high abuse 313
 board leaded 313
 board partition 313
 board partition NLB 313
 board removal 313
 board system 313
 drywall 313
 fabric wallcovering 313
 high abuse drywall 313
 lath 313
 lath nail 313
 partition 313
 partition NLB 313
 plaster 313
 restoration 313
 roof deck 313
 shaft wall 313
 sheathing 313
 sound dampening panel 313
 underlayment poured 313
 wallboard repair 313
 weatherproof 313
 H
 H pile 604
 Hair interceptor 479
 Half round molding 194
 Hammer bush 78
 chipping 672
 demolition 672
 diesel 672
 drill rotary 672
 hydraulic 672, 673
 pile 672
 pile mobilization 672
 vibratory 672
 Hammillmill 673
 Hand carved door 252
 clearing 326
 dryer 342
 excavation 578, 581
 hole 642
 hole concrete 642
 split shake 210
 trowel finish concrete 76
 Handball court 432
 court backstop 399
 Handball squash court 399
 Handicap drinking fountain 432
 fixture support 399
 lever 399
 opener 399
 ramp 399
 water cooler 399
 Handle door 416
 Handling material 187
 unit air 325, 328
 waste 432
 Hand-off-automatic control 356
 Handrail 32
 aluminum 32
 fiberglass 32
 wood 194, 199
 Handwasher-dryer module 446
 Hangar 446
 door 261

Haris demo	424	floor mounted space	520	electric	657	HVAC axial flow fan	508
Har accessories formwork	61	gas fired infrared	528	overhead	657	demolition	496
Har	168	gas residential water	483	personnel	677	duct	505
	168	gas water	483	tower	677	equipment insulation	499
Hanging lintel	129	gas-fired duct	520	Holder closer	282	louver	513
	318	infrared	528	screed	66	piping specialties	502, 503
Hard cabinet	409	sauna	431	Holding tank	664	power circulator & ventilator	510
Harding	196	space	673	Holdown	168	Hydrant fire	635
Head door	265	swimming pool	519	Hole drill	599	for building fire	456
Hanging	195	terminal	528	Hollow core door	252, 257	ground box	477
Perforated	195	unit	520, 528	metal door	248	removal	30
Entertainment	186	warm air	520	metal frame	247	wall	477
Harmer concrete	77	water	386	metal stud partition	307	water	477
Har	50	water residential	483	precast concrete plank	81	Hydrated lime	92
Har are	281	water residential electric	482	wall anchor	121	Hydraulic chair	401
Homent	282	Heating	469, 517, 519-521, 811	Honed block	102	crane	657, 676
Hment	410	& cooling classroom	528	Honing floor	79	dredging	654
Ha	621	electric	531	Hood and ventilation equip	515	excavator	668
di	281	estimate electrical	531	exhaust	393	hammer	669, 673
diery	406	hot air	519, 520, 528	fire protection	515	jack	677
el/hotel	282	hydronic	518, 519, 528	fume	393	jack climbing	677
ric	283	insulation	499	range	385	jacking	772
ugh	176	kettle	676	Hook coat	362	lift	451
idow	281	subsoil	429	robe	363	seeding	627
Hardwood carrel	418	Heavy construction	624	Hooks clevis	158	Hydrodemolition	29
ur stage	395	duty shoring	19	Hopper refuse	452	concrete	29
re	199	framing	185	Horizontal borer	675	Hydromulcher	675
Ha ss body	21	lifting	772	boring	632	Hydronic heating	518, 519, 528
Ha ss disc	669	rail track	648	boring machine	668	heating convactor	529
Ha ss	286	timber	185	directional drill	675	Hypalon neoprene roofing	231
Hard coat strip	362	Helicopter	677	drilling	632		
rk	369	Hemlock column	200	Hom fire	571		
Flat ceiling	259	Het flush	489	Hose adapter fire	457		
or	260	HEX bolt steel	120	air	672		
rf	239	Hexagonal face block	102	biib sillcock	487	Ice machine	391
ike	239	High abuse drywall	313	braided bronze	475	skating equipment	429
Ha earthwork	588	build coating	346	discharge	673	Icemaker	384, 391
Ha ng	589	chair reinforcing	65	equipment	457	I-joists wood & composite	187
le	589	efficiency flush valve	489	fire	457	Impact barrier	650
le	626	efficiency urinal	489	metal flexible	475	wrench	672
le	598	installation conduit	541	nozzle	457	Implosive demolition	31
Hardous waste cleanup	39	rib lath	306	rack	457	Improvement site	620
ate containment	37	rise glazing	293	rack cabinet	365	Incandescent fixture	561
ate disposal	39	strength block	39	suction	673	Incinerator gas	402
ate handling	403	strength bolt	122, 792	valve cabinet	366	municipal	402
IE	38	strength decorative block	101	water	673	waste	402
Ha sprinkler	457	strength steel	132, 794	Hospital cabinet	411	Inclined ramp	451
Haier pipe wellpoint	677	temperature vent chimney	517	casework	411	Increaser vent chimney	517
od	183	High-security chain link fences	620	door hardware	282	Incubator	393
Haers load-bearing stud wall	142	Highway equipment rental	675	equipment	399	Index construction cost	11
Haers/beams boxed	146	paver	615	furniture	419	Indian granite	616
Ha rail metal toilet component	355	sign	353	hinge	287	Indicating panel burglar alarm	570
Ha stic-laminate toilet	355	Hinge	286	kitchen equipment	390	Indirect-fired water chiller	523
Ha club equipment	396	brass	287	partition	358	Indoor athletic carpet	328
Ha h	111	cabinet	410	tip pin	287	Induced draft fan	516
Ha baseboard	528	continuous	288	Hot air furnace	519	Industrial address system	566
Ha tric baseboard	531	electric	287	air heating	519, 520, 528	chimneys	780
Ha nger	521	hospital	287	water boiler	518, 519	door	260, 261
Ha nger plate-type	522	paumelle	287	water dispenser	482	dryer	382
Ha nger shell-type	522	prison	287	water heating	517, 528	equipment installation	377
Ha nhouse	434	residential	287	water-steam exchange	484, 522	folding partition	360
Ha s	812	school	287	water-water exchange	522	lighting	560
Ha mp	527	security	287	weather concrete	75	railing	154
Ha mp residential	550	special	287	Hotel cabinet	363	safety fixture	491
Ha mp air-source	527	stainless steel	287	furniture	417	window	272
Ha mp water-source	527	steel	286	lockset	284, 285	Inert gas	38
Ha rovery	402	wide throw	287	House garden	439	Inertial guidance	28
Ha lective glass	293	Hinges	802	guard	439	Infrared broiler	389
Ha iporary	16, 52	Hip rafter	181	telephone	567	detector	570
Ha ipy	400	Historical Cost Index	11	Housewrap	217	Infrared heater	528
Ha nsfer fluid	521	Hockey dasher	429	Hubbard tank	400	Infrared heater gas fired	528
Ha nsfer package	484	scoreboard	397	Humidification equipment	434	Inlet curb	616
Ha nsfer pads	52	Hoist	656	Humidifier	386, 531	In-line fan	509
Ha nsdy-mix concrete	52	automotive	451	duct	531	Insecticide	599
Ha ns & fan bathroom	511	chain	657	room	531	Insert concrete formwork	62
Ha ns electric	386	chain fall	677	Humus peat	626	slab lifting	66

I

- Inspection technician 16
 Installation add elevated 462
 extinguisher 366
 Instantaneous gas water heaters 483
 Instrument switchboard 550
 Insulated glass spandrel 294
 panels 217
 precast wall panel 82
 Insulating concrete formwork 59
 glass 293
 Insulation 212, 214
 batt 213
 blanket 498
 blower 673
 blown-in 214
 board 212
 boiler 499
 breecching 499
 building 214
 cavity wall 214
 ceiling 212
 cellulose 214
 composite 216
 duct 498
 duct thermal 498
 equipment 499
 exterior 217
 fiberglass 212-214, 437, 498
 finish system exterior 217
 floor 212
 foam 214
 HVAC equipment 499
 insert concrete block 101
 isocyanurate 212
 loose fill 214
 masonry 214
 mineral fiber 214
 pipe 469
 piping 469
 polystyrene 212, 214
 reflective 215
 refrigeration 430
 removal 41, 209
 rigid 212
 roof 215, 437
 roof deck 215
 sandwich panel 224
 shingle 218
 spray 215
 sprayed-on 215
 subsoil 429
 vapor barrier 217
 vermiculite 214
 wall 212, 437
 wall blanket 213
 Insurance 12
 builder risk 12
 equipment 12
 public liability 12
 Intake-exhaust louver 514
 vent 514
 Integral colors concrete 50
 topping concrete 77
 waterproofing 52
 waterproofing concrete 51
 Interceptor 479
 grease 479
 hair 479
 metal recovery 480
 oil 480
 Intercom 506
 Interior beam formwork 52
 door frame 201
 light fixture 560
 paint doors & windows 339
 paint walls & ceilings 344
 planter 420
 pre-hung door 258
 residential door 256
 shutter 407
 wood door frame 201
 Interlocking concrete block 103
 precast concrete unit 614
 intermediate metallic conduit 540
 interval timer 545
 intrusion detection 570
 system 570
 Invert manhole 641
 Inverted bucket steam trap 503
 Iron alloy mechanical joint pipe 494
 body valve 496
 Ironer laundry 382
 Ironing center 363
 Ironspot brick 320
 Irrigation system 625
 system sprinkler 625
 Isocyanurate insulation 212
 I.V. track system 358
- J**
- Jack cable 677
 hydraulic 677
 ladder 20
 post adjustable 126
 pump 18
 roof 181
 screw 600
 Jackhammer 582, 671
 jacking 632
 jail equipment 264
 jet water system 637
 jeweler safe 380
 job condition 11
 jockey pump fire 459
 joint assembly expansion 244
 control 77, 91
 expansion 61, 237, 307, 502
 filler 242
 gaskets 242
 push-on 633
 reinforcing 94
 roof 238
 sealant replace 208
 sealant replacement 208
 sealer 242, 243
 tyton 633
 Joiner shop 394
 Joist bridging 137
 chair reinforcing 65
 concrete 72
 connector 168
 deep-longspan 136
 demolition 163
 framing 178
 girder 139
 hanger 168
 longspan 136
 metal framing 147
 open-web 137
 precast concrete 80
 removal 163
 truss 139
 web stiffeners 147
 wood 178, 187
 Jumbo brick 98
 Jute mesh 598
- K**
- Kalamein door 255
 Keene cement 308
 Kennel door 260
 fence 621
 Kettle 390
 heating 676
 tir 674, 676
 Key cabinet 291
 keeper 368
 Keyless lock 284
 Keyway footing 55
 Kick plate 288
 plate door 288
 Kiln vocational 394
 King brick 98
 Kiosk 439
 Kitchen appliance 384
 cabinet 408
 equipment 389
 equipment fee 10
 exhaust fan 511
 metal cabinet 412
 sink 485
 sink faucet 486
 sinks residential 485
 unit commercial 383
 K-lath 306
 Knob door 285
 Kraft paper 218
- L**
- Labeled door 250, 254
 frame 248
 Labor adjustment factors 462
 formwork 777
 index 11
 modifiers 462
 Laboratory analytical services 46
 cabinet 411
 casework metal 411
 countertop 413
 equipment 393, 411
 safety equipment 394
 sink 394
 table 394
 test equipment 393
 Ladder alternating tread 153
 exercise 396
 extension 673
 inclined metal 152
 jack 20
 monkey 398
 rolling 20
 ship 152
 swimming pool 428
 towel 363
 type cable tray 542
 vertical metal 152
 Lag screw 123
 screw shield 121
 lagging 602
 lally column 126
 laminated beam 188
 countertop 412
 countertop plastic 412
 epoxy & fiberglass 346
 framing 188
 glass 296
 lead 442
 roof deck 185
 sheet flashing 233
 veneer members 188
 wood 188
 Lamp electric 363
 guard 564
 metal halide 564
 post 156, 564
 Lampholder 357
 Lamphouse 360
 Lance concrete 673
 Landfill compactor 605
 Landing metal pan 135
 stair 52
 Landscape fee 55
 surface 52
 Laser level 675
 Latch deadlocking 265
 set 284, 285
 Lateral arm awning retractable 37
 Latex caulking 245
 underlayment 322
 Lath demolition 37
 gypsum 388
 metal 312, 384
 Lath, plaster and gypsum board 385
 Lath rib 39
 Lath shop 394
 Lattice molding 194
 Lauan door 256
 Laundry equipment 382, 383
 faucet 383
 folder 382
 ironer 382
 presser 382
 sink 382
 spreader 382
 Lava stone 178
 Laxatory commercial 469
 faucet 465
 pedestal type 465
 removal 465
 residential 464, 465
 sink 461
 support 461
 vanity top 461
 wall hung 465
 Lawn grass 67
 mower 673
 seed 67
 Lazy Susan 490
 Leaching field chamber 638
 pit 638
 Lead barrier 331
 caulking 678
 coated copper downspout 236
 coated copper gutter 237
 coated downspout 236
 coated flashing 234
 flashing 234
 glass 462
 gypsum board 462
 lined darkroom 462
 lined door frame 462
 paint encapsulation 46
 paint remediation 46
 paint remediation methods 774
 paint removal 46
 plastic 462
 roof 235
 salvage 460
 screw anchor 122
 sheets 462
 shielding 462
 testing 46
 Leads pile 169
 Leak detection 352
 detection probe 352
 detection tank 352

tem type greenhouse	434	block	104	Louver	296	fireplace	199
tem hall seating	419	channel framing	128	aluminum	296, 513	Manual dumbwaiter	446
tem wood	182	columns	126	aluminum operating	514	Map rail	350
tem movie	392	concrete	72, 74, 789	coating	514	Maple countertop	412
tem bracing	176	floor fill	72	cooling tower	514	floor	321
tem sign	352	framing	128	door	297	Marble	109
tem	368	insulating concrete	84	fixed blade	514	chips	626
tem laser	673	junior beam framing	128	HVAC	513	chips white	51
tem dock	379	natural stone	108	intake-exhaust	514	coping	112
tem	379	tee framing	128	midget	296	countertop	413
tem jack shoring	19	Zee framing	128	mullion type	514	floor	109
tem handicap	286	Lime finish	92	redwood	297	screen	357
tem	295	hydrated	92	ventilation	297	shower stall	357
tem employer	12	Limestone	109, 627	wall	297	sill	110
tem fence	766	coping	112	wood	199	soffit	109
tem equipment demolition	376	Line gore	617	Louvered door	257, 258	stair	109
tem fishing	418	remover traffic	676	Low sound fan	508	synthetic	320
tem fixture	419	Linen chutes	452	Lowbed trailer	675	tile	320
tem	419	collector	452	Low-voltage silicon rectifier	556	Marina small boat	654
tem hard chair	428	wallcovering	329	switching	556	Marine equipment rental	678
tem	451, 452	Liner cement	632	switchplate	556	Marker boundary and survey	28
tem	671	duct	508	transformer	556	Markerboard electronic	350
temotive	451	flue	111	Lubrication equipment	378	Mark-up cost	13
tematic	400	non-fibrous duct	508	Lug terminal	537	Masking	90
tem correspondence	452	pipe	632	Lumber	176	Mason scaffold	18
temraulic	451	Lint collector	382	core paneling	196	Masonry accessory	94
tempel	452	Lintel	109	product prices	799	aggregate	93
temsor	657, 671	block	103	recycled plastic	202	anchor	94
temk aerial	676	concrete block	103	treated	182	base	105
tem wheelchair	451	galvanizing	129	Luminous ceiling	317, 318, 563	brick	96, 320
tem platform	379	hanging	129	panel	317	building cleaning	90
tem equipment rental	676	precast concrete	83			cement	92
tem base formwork	56	steel	129			cleaning	90
temder	562	Liquid chiller centrifugal	523			color	93
temtal	401	chillers screw	524	Macadam	611	cutting	34
temk	379	Load center residential	545	penetration	611	demolition	32, 91, 301
temure interior	560, 562	test pile	574	Machine autoscrub	672	fireplace	111
temure troflier	561	Load-bearing stud part. framing	143	excavation	587	flashing	233
temking dock	379	stud wall bracing	141	screw	123	furring	183
temse call	567	stud wall bridging	141	trowel finish concrete	76	insulation	214
teme aluminum	562	stud wall framing	143	welding	675	manhole	642
teme steel	563	stud wall headers	142	X-ray	570	nail	167
temeld	650	Loader front end	583	Machinery anchor	123	pointing	343
temd	40	skidsteer	671	Magazine shelving	419	panel	106
tembe	562	tractor	670	Magnesium dock board	379	panel pre-fabricated	106
temport	126	vacuum	40	oxychloride	240	pointing	90
temporary	16	wheeled	670	Magnetic astragal	289	reinforcing	94, 790
temer	673	window	676	motor starter	554	removal	30, 91
temerwater	428	Loading dock	379	particle test	16	restoration	93
teming	560, 561	dock equipment	379	Mahogany door	252	saw	674
temroom	384	dock light	379	Mail box	368	sawing	90
temergency	561, 562	Loam	574, 577	box call system	567	sill	110
temt	562	Lobby collection box	368	box commercial	368	step	610
temlosionproof	562	Lock electric release	284	slot	368	testing	15
temior fixture	563	entrance	286	Main drain	481	toothing	32
temure exterior	563	keyless	284	office expense	13	ventilator	94
temtain	493	tile	415	Maintenance	25	wall	100, 623
temandescent	561	time	264	carpet	300	wall tie	94
temustrial	560	tubular	284	of railroads	648	waterproofing	93
temidet	548	Locker metal	366	Make-up air unit	525	Mass notification system	572
temle	562	plastic	367	Mall front	269	Massage table	396
temidential	548	steel	366	Management fee construction	10	Mastic floor	326
temidway	563	wall mount	367	Manhole	642	Mastic-backed flashing	233
temge	562	wire mesh	367	brick	642	Mat blasting	582
temp	560	Locking receptacle	517	concrete	642, 644	concrete placement foundation	75
temgical	400	Lockset communicating	284, 285	cover	641	floor	415
temtrical	562	cylinder	284	electric service	644	foundation	73
temit emergency	561	hotel	284, 285	frame and cover	641	foundation formwork	56
teming protection demo	424	mortise	285	invert	641	gym	397
tempressor	545	Locomotive tunnel	676	raise	641	wall	396
temweight aggregate	51	Log chipper	670	removal	29	Material handling	657
temgle framing	128	electric	364	step	642	handling belt	656
		gas	364	Man-made soil mix	221	handling conveyor	656
		skidder	670	Mansard aluminum	223	handling deconstruction	37
		Longspan joist	136	Mantel beam	199	handling system	656
		Loose fill insulation	214			index	11

Index

Materials concrete	784	lath	302, 306	Minor site demolition	29	thinset	316
Meat case	387	locker	366	Mirror	294, 362	Mortise lockset	285
Mechanical	809	molding	307	ceiling tile	317	Mortuary equipment	402
dredging	654	nailing anchor	121	door	294	refrigeration	402
duct	505	overhead door	265	glass	294	Mosaic glass	316
equipment demolition	496	paints & protective coating	116	plexiglass	295	Moss peat	626
lee	10	pan ceiling	318	wall	294, 295	Motel/hotel hardware	282
media filter	515	pan landing	152	Miscellaneous painting	334, 339	Motion detector	570
seedling	627	pan stair	152	Mix design asphalt	15	Motor connections	544
Median barrier	650	panel	224	planting pit	627	dripproof	564
precast	650	parking bumper	616	Mixed bituminous conc. plant	574	electric	564
Medical distiller	400	pipe	638	Mixer concrete	668	starter	554
equipment	399, 400, 402	pipe removal	465	food	389	starter & control	554
exam equipment	400	plate stair	152	mortar	668, 673	starter magnetic	554
sterilizer	399	pressure washing	116	plaster	673	starter w/circuit protector	554
sterilizing equipment	399	rafter framing	149	road	675	starter w/fused switch	554
X-ray	402	recovery interceptor	480	Mixes concrete	784, 785	support	126
Medicine cabinet	363	roof	222	Mixing valve	487	Motorized grader	699
Medium-voltage cable	535	roof parapet framing	149	Mobile shelving	419	roof	454
Membrane flashing	229	roof truss	132	X-ray	402	Motors	564
roofing	227	sandblasting	116	Mobilization	575, 607	Moulded door	255
waterproofing	210	sash	272	air-compressor	575	Mounted booth	417
Mercury vapor lamp	564	screen	272	equipment	601, 607	Mounting board plywood	186
Mesh fence	618	sheet	232	or demob.	21	Movable louver blind	407
gunite	79	shell	368	Model building	10	office partition	359
partition	358	shelving food storage	388	Modification to cost	11	Movie equipment	392
security	307	shingle	218	Modified bitumen roof	229	equipment digital	393
stucco	306	siding	222, 223	bitumen roofing	800	lens	392
wire	621	sign	352	bituminous membrane SBS	229	projector	392
Metal bin retaining walls	623	soffit	227	Modifiers labor	462	screen	392
bookshelf	419	steam cleaning	116	Modular office system	359	Moving building	37
bracing	176	stud	302	playground	398	ramp	451
butt frame	248	stud demolition	301	Module handwasher-dryer	488	ramps and walks	809
cabinet	412	stud NLB	304	Modulus of elasticity	15	shrub	630
cabinet school	411	support assemblies	304	Mold point	672	stairs & walks	450
canopy	370	threshold	286	Moisture barrier	211	structure	37
case good	416	tile	316	content test	16	tree	630
casework	291, 411	toilet component door	354	Mold abatement	45	walk	451
ceiling panels	319	toilet component headrail	355	abatement work area	45	Mower lawn	675
chalkboard	349, 360	toilet component panel	354	contaminated area demolition	46	Mowing brush	576
chimney	96, 364, 516	toilet component pilaster	354	Molding base	191	Muck car tunnel	676
cleaning	116	toilet partition	353	brick	194	Mud pump	668
corner guard	361	trash receptacle	415	casing	192	sill	182
deck	140	truss framing	151	ceiling	193	trailer	675
deck acoustical	141	water blasting	116	chair	194	Mulch bark	626
deck composite	139	window	271, 272, 438	cornice	194	ceramic	626
deck ventilated	141	wire brushing	116	exterior	194	stone	626
demolition	116	Metal-clad casement window	274	hardboard	196	Mulcher power	670
detector	570	double-hung window	274	metal	307	Mulching	626
door	247, 251, 265, 437	window bow & bay	275	pine	194	Mullion type louver	514
door frame	437	window picture & sliding	275	soffit	195	vertical	208
door residential	250	Metal-faced wood door	255	trim	194	Multi-blade damper	506
ductwork	505	Metallic conduit intermediate	540	window and door	194	Multi-channel rack enclosure	560
facing panel	224	foil	215	wood transition	321	Multizone air cond. rooftop	502
fascia	235	hardener	77	Money safe	380	Municipal incinerator	402
fence	618	non-sink grout	84	Monitor support	126	Muntin window	277
fire door	251	Meter electric	550	Monitoring sampling	46	Mushroom ventilator stationary	514
flashing	437	steam condensate	505	Monkey ladder	398	Music room	431
flexible hose	475	venturi flow	504	Monolithic gutter	615	Mylar tarpaulin	22
floor deck	141	water supply	475	terrazzo	324		
flue chimney	516	water supply domestic	475	Monorial	656		
frame	247	Metric conversion	785	Monument survey	28		
frame channel	248	rebar specs	778	Mop holder strip	363		
frame hollow	247	Microphone	566	roof	229		
framing parapet	149	Microtunneling	632	sink	488		
furring	304	Microwave oven	384	Mortar	92		
halide lamp	564	Mill construction	185	admixture	93		
in field galvanizing	346	extras steel	132	Mortar, brick and block	791		
in field painting	346	Milwaukee	191, 409	Mortar cement	315, 790		
in shop galvanizing	116	& trim demolition	166	masonry cement	92		
interceptor dental	480	demolition	166	mixer	668, 673		
joist bracing	145	Mineral fiber ceiling	317, 318	pigments	93		
joist bridging	145	fiber insulation	214	Portland cement	92		
joist framing	147	fiberboard panel	331	restoration	93		
laboratory casework	411	insulated cable	538	sand	93		
ladder inclined	152	roof	232	testing	15		

N

Nail	166
common	466
lead head	442
stake	64
Nailer pneumatic	672, 673
wood	178
Nailing anchor	121
Napkin dispenser	363
Needle beams cantilever	602
Neoprene adhesive	211
expansion joint	237
flushing	234
floor	326

Index

gasket	242	industrial automatic	281	removal floor	78	spandrel	294
roof	231	Opening framing	437	removal lead	44	structural	184
waterproofing	211	roof frame	129	siding	335	system	196
Net safety	18	Open-web joist	137	sprayer	673	vision	280
tennis court	618	Operable partition	361	striper	675, 676	wall	111
Netting bird control	373	Operating room equipment	401	trim exterior	337	woven wire	358
flexible plastic	373	Operator automatic	281	walls & ceilings interior	342, 344	Panelboard	553
Newel wood stair	197	Options elevator	449	walls masonry exterior	338	electric	553
Newspaper rack	419	Ornamental aluminum rail	159	Paint/coating cabinet		w/circuit-breaker	552, 553
Night depository	381	columns	160	& casework	339	Paneled door	250
No hub pipe	478	glass rail	159	Painted markings airport	617	pine door	257
Non-chloride accelerator conc.	75	railing	159	pavement markings	617	Paneling	195
Non-destructive testing	16	steel rail	159	Painting	806	birch	196
Non-metallic non-shrink grout	84	wrought iron rail	159	balustrade	342	board	197
Non-removable pin	287	OSHA testing	42	bar joist	138	cutout	32
Norwegian brick	98	Outdoor bleacher	435	booth	378	demolition	166
Nosing rubber	322	Outlet box steel	541	casework	339	hardboard	195
safety	322	lighting	548	ceiling	342, 344	plywood	196
stair	322, 324	Outrigger wall pole	373	clapboard	335	wood	195
Nozzle dispersion	458	Oval arch culverts	640	concrete block	343	Panelized shingle	219
fire hose	457	Oven	384, 389	cornice	342	Panels and devices alarm	571
fog	457	cabinet	409	decking	335	insulated	217
fountain	493	convection	390	drywall	342, 344	prefabricated	217
Nurse call light	567	microwave	384	electrostatic	342	Panic bar	284
call systems	567	Overbed table	419	exterior siding	335	device	283
speaker station	567	Overhang eave	436	grille	341	Paper building	217
station cabinet	411, 412	endwall	436	masonry	343	reinforcing tubing	66
Nursery items travel	628	Overhaul	33	metal in field	346	sheathing	217
Nursing home bed	419	Overhead & profit	13	miscellaneous	334, 339	Paper-backed flashing	234
Nuts remove	116	bridge cranes	656	parking stall	617	Paperhanging	329
Nylon carpet	327	commercial door	265	pavement	617	Paperholder	363
nailing anchor	121	contractor	25, 766	pipe	342	Paraffin bath	400
		door	265, 266	plaster	342, 344	Parallel bar	390, 400
		hoist	657	railing	334	Parapet metal framing	149
		office	13	reflective	617	Parcel lift	452
		support	247	shutters	334	Parging cement	210
Oak door frame	200	Overlapping astragal	290	siding	335	Park bench	421
floor	321	Overlay face door	252, 251	stair stringers	335	Parking barrier	617
molding	194	Overpass	624	steel	346	barrier precast	616
paneling	196	Oversized brick	97	steel siding	335	bumper	617
threshold	201	Overtime	11, 13, 765	stucco	335	bumper metal	616
Oakum caulking	478	Oxygen lance cutting	34	swimming pool	428	bumper plastic	616
Obscure glass	293			temporary road	617	bumpers wood	617
Observation well	637			tennis court	618	collection equipment	378
Offhighway dumptruck	671			thermoplastic	617	control equipment	378
Office & storage space	17			trellis/lattice	335	equipment	378
chair	416	P trap	478	trim	342	garage public	439
expense	13	trap running	478	truss	342	gate	378
field	17	Package chute	452	wall	335, 343, 344	gate equipment	378
floor	328	receiver	381	window	339	lots paving	612
furniture	416	Packaged terminal air cond.	526	Paints & coatings	332	markings pavement	617
overhead	13	Packaging waste	43	& protective coating metal	116	stall painting	617
partition	359	Pad bearing	124	Palladian window	276	ticket equipment	378
partition movable	359	carpet	327	Pallet rack	368	Parquet floor	321
safe	380	commercial grade carpet	327	Pan shower	233	Particle board underlayment	186
system modular	359	equipment	72	slab	72	core door	253
trailer	17	vibration	124	Panel acoustical	331, 360	Parting bead	195
Oil fired boiler	518	Padding carpet	327	brick wall	106	Partition	358, 360
oil fired furnace	519	Paddle blade air circulator	510	door	255	acoustical	359, 360
fired space heater	520	fan	549	facing	110	anchor	94
formwork	64	tennis court	399	fiberglass	22, 223, 331	block	104
interceptor	480	Pads heated	52	fire	571	blueboard	303
storage tank	501	Paint & coating interior floor	341	FRP	330	bulletproof	381
water heater	483	aluminum siding	335	luminous	317	concrete block	104
water heater commercial	483	chain link fence	334	masonry	106	demolition	301
water heater residential	483	doors & windows exterior	336	metal	224	demountable	359
Oil-filled transformer	550	doors & windows int.	339, 340	metal facing	224	door	359
Olive knuckle hinge	287	encapsulation lead	43	metal toilet component	354	drywall	303
Omitted work	13	exterior miscellaneous	334	mineral fiberboard	331	folding accordion	360
One piece astragal	289	fence picket	334	plastic-laminate toilet	355	folding leaf	360
One-way vent	239	floor	341	portable	360	framing load bearing stud	143
Ornyx	324	floor concrete	341	precast concrete double wall	81	framing NLB	304
Opener automatic	281	floor wood	341	sandwich	223	gypsum	359
door	246, 262, 266, 281	interior miscellaneous	341	shearwall	184	hospital	358
driveway security gate	264	remediation lead	43	sound	441	mesh	358
handicap	281	removal	44	sound dampening gypsum	312	movable office	359

Index

NLB drywall	302	Peastone	628	prestressed	603, 607	rail stainless	153
NLB gypsum	303	Peat humus	626	soil	627	rail steel	153
office	359	moss	626	splice	604, 605	rail wall	153
operable	361	Pedestal floor	328	steel	601	railing	153
plaster	302	type lavatory	485	steel sheet	600	reinforced concrete	639
portable	361	type seating	419	step tapered	604	relay	586
refrigeration	430	Pedestrian bridges	624	testing	574	removal	30
shower	109, 357	traffic control	380	treated	604	removal metal	463
sliding	361	Peephole	285	wood sheet	600	sewage	637-639
steel	359, 360	Pegboard	195	Piles timber	604	shock absorber	477
stud	307	Penetration macadam	611	wood	604	single hub	478
support	126	test	15	Piling sheet	600, 819	sleeve plastic	63
thin plaster	303	Penthouse roof louver	514	special costs	574	soil	478
tile	99	Perforated aluminum pipe	641	Pillow tank	636	stainless steel	473
toilet	109, 353, 355, 356	ceiling	317	Pin powder	124	steel	470, 639
toilet stone	356	pipe	641	Pine door	255	subdrainage	641
wall	302	PVC pipe	642	door frame	200	support framing	129
wall NLB	302	Performance bond	13, 770	fireplace mantel	199	tee	472
wire	358	Perlite insulation	212	floor	321	water	633
wire mesh	358	plaster	308	molding	194	weld joint	471
wood frame	179	sprayed	346	roof deck	185	wrapping	632
woven wire	358	Permit building	14	shelving	369	Piping designations	821
Parts bin	368	Personal respirator	40	siding	225	Piping gas service polyethylene	643
Passage door	250, 258	Personnel field	12	stair tread	197	gasoline	643
Passenger elevator	446	hoist	677	Pipe & fittings	465, 466, 470-473, 475, 477, 479, 480, 490, 494, 497	HVAC specialties	502
elevator hydraulic	448	protection	17	acid resistant	494	insulation	469
elevators	808	Petrographic analysis	15	add elevated	462	specialties HVAC	502, 503
Patch core hole	15	Pew church	420	aluminum	639, 641	storm drainage	638
formwork	64	sanctuary	420	and fittings	810	Pit excavation	581
roof	208	PEX pipe	474	bedding	588	leaching	638
Patching asphalt	574	tubing	474, 530	bedding trench	581	scale	373
concrete floor	50	tubing fittings	530	bollards	616	sump	586
concrete wall	50	Phone booth	353	brass	470	Pitch coal tar	228
Patient care equipment	400	Photography	14	bumper	361	emulsion tar	610
nurse call	567	acerial	14	cast iron	478	pocket	249
Patio	611	construction	14	cleanout	467	Pits test	20
block	109, 229	time lapse	14	concrete	639	Pivoted window	272
block concrete	614	Physician's scale	400	copper	470	Placing concrete	75, 786
door	261	PB roof	230	corrosion resistant	494	reinforcement	779
Patio/deck canopy	370	Picket railing	154	corrugated	641	Plain tube framing	267
Patterned glass	293	Pick-up truck	674	corrugated metal	638, 641	Plan remediation	40, 43
Paumelle hinge	287	Pick-up vacuum	668	covering	469	Planer pavement	675
Pavement	614	Picture window	273	covering fiberglass	469	shop	394
asphalt	618	window aluminum sash	271	CPVC	474	Plank floor	186
asphaltic	612	window steel sash	272	double wall	643	grating	155
berm	615	window vinyl	279	drain	583	hollow precast concrete	81
breaker	671	Pier brick	96, 97	drainage	494, 637-639	precise concrete nailable	81
bucket	675	Pigments mortar	93	ductile iron	633	precise concrete roof	81
demolition	29	Pilaster metal toilet component	354	DWV PVC	473	precise concrete slab	81
emulsion	610	plastic-laminate toilet	355	elbow	472	roof	185
markings	616	toilet partition	357	encapsulation	43	scaffolding	19
markings painted	617	wood column	200	epoxy fiberglass wound	494	sheathing	187
painting	617	Pile	607	fire retardant	494	Plant and bulb transplanting	630
parking markings	617	boot	605	firing grooved joint	472	bed preparation	626
planer	675	bored	606	foam core DWV ABS	473	mixed bituminous concrete	574
profiler	676	cap	74	gas	643	screening	670
replacement	612	cap concrete placement	76	glass	494	Planter	420, 421
sealer	618	cap formwork	55	grooved joint	471	bench	421
slate	110	cutoff	574	insulation	469	concrete	421
widener	675	driven	605	insulation removal	41	fiberglass	421
Paver asphalt	673	driving	772	iron alloy mechanical joint	494	interior	420
bituminous	673	driving mobilization	575	liner	632	Planting	630
cold mix	675	encasement	605	metal	638	Plant-mix asphalt paving	612
concrete	673	foundation	607	no hub	478	Plants and planters	620
floor	320	friction	604	painting	342	ground cover	628
highway	615	II	602, 604	perforated aluminum	641	Plaque	352
shoulder	675	hammer	669	PEX	474	Plaster	302
tile exposed aggregate	614	high strength	600	pile	607	accessories	307
Paving asphaltic concrete	612	leads	669	plastic	473, 474	beam	308
athletic	618	lightweight	600	polyethylene	643	ceiling	308
block granite	615	load test	574	polypropylene	494	cement	429
brick	614	mobilization hammer	575	proxylene	494	column	308
parking lots	612	pipe	607	PVC	473, 634, 637	cutout	32
surface treatment concrete	613	point	604, 605	rail aluminum	153	demolition	300, 301
Pea gravel	626	point heavy duty	605	rail galvanized	153	drilling	304
stone	51	precast	603			gauging	308

ground	183	appliance	482	Polyvinyl-chloride roof	231	concrete unit paving slabs	614
gypsum	308	demolition	463	Pool accessory	428	concrete wall	82
mixer	673	fixt. 480, 484, 492, 504, 637, 810		cover	428	concrete wall panel tilt-up	83
painting	342, 344	fixtures removal	463	cover polyethylene	428	concrete window sill	83
partition	302	laboratory	394	filtration swimming	493	concrete	789
partition thin	303	Plywood	799	heater electric	519	coping	112
perlite	308	clip	168	swimming	427	curb	615
thincoat	309	demolition	300, 301	Porcelain tile	314	inverted tee beam	80
vermiculite	308	fence	23	Porch framing	180	median	650
wall	308	floor	186	molding	194	members	787
Plasterboard	310	formwork	52, 54	Portable air compressor	671	parking barrier	616
Plastic angle valve	465	formwork steel framed	59	asphalt plant	675	pile	603
ball valve	465	joist	187	booth	440	receptor	357
faced hardboard	195	mounting board	186	building	17	septic tank	638
fireproofing	240	paneling	196	cabinet	388	tee beam	80
glazing	295	sheathing roof & walls	186	chalkboard	350	tees	81
grille	513	shelving	369	eye wash	491	terrazzo	324
laminate door	253	sidewalk	24	fire extinguisher	365	wall	789
laminated countertop	412	siding	225	floor	322	wall panel	82
lead	442	sign	352	panel	360	wall panel insulated	82
locker	367	soffit	195	partition	361	Pre-engineered steel building	435
parking bumper	616	subfloor	186	post	380	steel buildings	807
pipe	473, 474	underlayment	186	scale	374	steel buildings demo	425
railings	204	Pneumatic control systems	499	stage	395	Prefab metal flue	516
roof ventilator	509	nailer	672, 673	Portland cement	51	Prefabricated building	434
screw anchor	122	tube	381	cement terrazzo	324	comfort station	438
sheet flashing	234	tube system	452	Post	380	fireplace	364
sign	352	Pocket door	282	athletic	399	Pre-fabricated masonry panel	106
skylight	280	door frame	201	cap	168	Prefabricated panels	217
toilet compartment	356	pitch	239	cedar	200	wood stair	197
toilet partition	356	Point heavy duty pile	605	concrete	650	Prefinished door	252
trench drains	481	moil	672	demolition	164	drywall	311
valve	465	pile	604, 605	driver	675	floor	321
window	277	Pointing CMU	90	fence	619	sheking	369
Plastic-laminate toilet compart.	355	masonry	90	lamp	158, 562	Preformed roof panel	222
toilet component	355	Poisoning soil	599	pedestrian traffic control	380	roofing & siding	222
toilet door	355	Poke-thru fitting	541	portable	380	Pre-hung door	257, 258
toilet headrail	355	Pole aluminum light	562	recreational	398	Preparation exterior surface	332
toilet panel	355	athletic	398	shores	63	interior surface	333
toilet pilaster	355	closet	194	tennis court	618	plant bed	626
Plastic-laminate-clad countertop	412	cross arm	644	Postal specialty	368	Presser laundry	382
Plate checkered	156	electrical	644	Posts sign	353	Pressure grouting cement	601
glass greenhouse	434	lighting	562	Post-tensioned concrete	82, 788	reducing valve water	465
push-pull	286	portable decorative	380	slab on grade	70	regulator	475
roadway	676	steel light	563	Potable water softener	482	regulator steam	475
shear	168	utility	562, 644	water treatment	482	relief valve	465
steel	129	wood electrical utility	644	Potters wheel	394	switch switchboard	552
stiffener	129	Polishing concrete	78	Poured gypsum underlayment	84	valve relief	465
wall switch	557	Polyacrylate floor	326	insulation	214	wash	333
wood	183	Polycarbonate glazing	295	Powder actuated tool	124	washer	673
Plate-type heat exchanger	522	Polyester floor	326	charge	124	washing metal	116
Platform checkered plate	156	Polyethylene backer rod	61	pin	124	Pressurized fire extinguisher	366
lifter	379	coating	632	Power equipment	770	Presswood bench	367
telescoping	395	film	626	mulcher	670	Prestressed concrete	788
tennis	399	floor	328	temporary	16	concrete piles	603
trailer	674	pipe	643	trowel	668	pile	603, 607
Plating zinc	167	pool cover	428	wiring	557	precast concrete	787
Players bench	422	septic tank	638	Preblast survey	582	Prestressing steel	70
Playfield equipment	398	tarpaulin	22	Precast beam	80	Preventer backflow	475
Playground equipment	398, 620	waterproofing	210, 211	bridge	624	Prices lumber products	799
modular	398	Polymer trench drain	481	catch basin	642	Prime coat	611
slide	398	Polyolefin roofing thermoplastic	231	column	80	Primer asphalt	208, 323
surface	323	Polypropylene pipe	494	concrete beam	80	steel	346
whirler	398	shower	486	concrete channel slab	81	Prison cot	418
Plenum barrier	331	valve	466	concrete column	80	door	264
demolition	301	Polystyrene blind	202	concrete joist	80	equipment	264
Plexiglass	295	ceiling	317, 429	concrete lintel	83	fence	621
acrylic	295	ceiling panel	317	concrete nailable plank	81	hinge	287
mirror	295	insulation	212, 214, 430	concrete plantable pavers	614	toilet	381
Flow vibrator	671	Polysulfide caulking	243	concrete roof plank	81	Process air handling fan	508
Plug in bus-duct	554	Polyurethane caulking	243	concrete slab plank	81	Processing concrete	78
in circuit-breaker	555	floor	326, 327	concrete stairs	81	Proctor compaction test	16
in switch	555	varnish	346	concrete tee beam	80	Produce case	387
wall	95	Polyvinyl chloride (PVC)	37	concrete tee beam double	81	Product piping	643
Plugmold raceway	556	soffit	195, 227	concrete tee beam quad	81	Productivity glazing	802
Plumbing	475	tarpaulin	22	concrete tee beam single	81	Profile block	102

Profler pavement 676
 Progress schedule 14
 Project overhead 13
 sign 24
 Projected window 271, 272
 Projection screen 349, 392
 Projector movie 392
 Propeller exhaust fan 510
 unit heaters 529
 Property line survey 28
 Protection corner 361
 fire 365
 slope 598
 stile 289
 temporary 25
 tennite 599
 winter 22, 52
 worker 40
 Protector door 282
 Proxylene pipe 494
 P&T relief valve 465
 PIAC units 526
 Public address system 566
 Pull box 541
 box electrical 541
 door 410
 Pulpit church 403
 Pump 504, 637
 centrifugal 673
 circulating 504
 concrete 668
 condensate 505
 condensate removal 504
 condensate return 505
 contractor 586
 diaphragm 673
 fire 459
 fire jockey 459
 fountain 493
 general utility 477
 grinder system 480
 grout 674
 heat 527
 in-line centrifugal 504
 jack 18
 mud 668
 operator 587
 sewage ejector 480
 shallow well 637
 shotcrete 668
 staging 18
 submersible 481, 673
 sump 386, 481
 trash 674
 water 637, 673
 water supply well 637
 wellpoint 677
 Pumped concrete 75
 Pumping 586
 dewater 586
 Purlin roof 185
 Push button lock 284
 Push-on joint 633
 Push-put plate 286
 Putlog scaffold 20
 Putting surface 328
 Puttying 332
 PVC adhesive 211
 blind 406
 cleanout 468
 conduit in slab 543
 control joint 94
 cornerboards 204
 door casing 204
 DWV pipe 473
 fascia 204

fitting 634
 flashing 234
 frieze 204
 gravel stop 235
 molding exterior 204
 pipe 473, 634, 637
 rake 205
 roof 231
 sheet 211, 328
 siding 226
 soffit 205
 trim 204
 underground duct 644
 valve 465
 waterstop 64

Q

Quad precast concrete tee beam 81
 Quarry drill 672
 drilling 582
 tile 315
 Quarter round molding 194
 Quartz 626
 chips 51
 flooring 326
 Quoins 109

R

Raceway 541, 542, 544
 conduit 540
 plugmold 556
 surface 556
 wiremold 556
 Rack bicycle 398
 coat 369, 409
 hat 369
 hose 457
 pallet 368
 Racquetball court 432
 Radial arch 188
 wall formwork 57
 Radiant floor heating 530
 Radiator cast iron 528
 supply control 503
 thermostat control sys. 499
 Radio frequency shielding 443
 tower 645
 Radiography test 16
 Radiology equipment 402
 Rafter anchor 168
 composite 181
 demolition 164
 framing metal 149
 hip 181
 metal bracing 148
 metal bridging 149
 tie 181
 valley 181
 wood 181
 Rail aluminum pipe 153
 crane 656
 crash 362
 dock shelter 379
 galvanized pipe 153
 guide 660
 guide guard 660
 nap 350
 ornamental aluminum 159
 ornamental glass 159
 ornamental steel 159
 ornamental wrought iron 159
 stainless pipe 153

steel pipe 153
 trolley 361
 wall pipe 153
 Railing cable 159
 church 403
 demolition 166
 industrial 154
 ornamental 159
 picket 154
 pipe 153
 wood 194, 197, 199
 wood stair 198
 Railings plastic 204
 Railroad ballast 648
 bumper 648
 concrete ties 648
 derail 648
 siding 651, 821
 tie 611, 630
 tie step 610
 timber switch ties 648
 timber ties 648
 track accessories 648
 track heavy rail 648
 track maintenance 648
 track removal 30
 turnout 651
 wheel stop 648
 Raise manhole 641
 manhole frame 641
 Raised floor 328
 Rake PVC 205
 tractor 670
 Rammer-tamper 669
 Ramp approach 329
 handicap 73
 moving 451
 temporary 22
 Ranch plank floor 321
 Range cooking 384
 hood 385
 receptacle 547, 557
 restaurant 390
 shooting 397
 Ratio water cement 15
 Razor wire 621
 Reading table 419
 Ready mix concrete 74, 786
 concrete heated 52
 Rebar accessories 65
 Receiver ash 415
 trash 415
 Receptacle air conditioner 547
 device 547
 dryer 547
 duplex 557
 GFI 547
 locking 547
 range 547, 557
 telephone 548
 television 548
 trash 421
 waste 363
 weatherproof 547
 Receptor precast 357
 shower 357, 486, 488
 terrazzo 357
 Recessed nat 415
 Recirculating water chiller 523
 Recirculating chemical toilet 664
 Recliner videotape 571
 Recone cylinder 284, 285
 Recreational post 398
 Rectangular diffuser 512
 ductwork 505
 Rectifier low-voltage silicon 556

Recycled plastic lumber 202
 Reduce heat transfer glass 293
 Redwood bark mulch 626
 cupola 571
 lower 297
 paneling 197
 siding 225
 trim 194
 wine cellar 388
 Refinish floor 321
 Reflective block 106
 glass 294
 insulation 215
 painting 617
 sign 353
 Reflectorized barrels 672
 Refrigerant removal 43
 Refrigerated case 387
 storage equipment 387
 wine cellar 388
 Refrigeration 429
 bloodbank 393
 commercial 387
 equipment 429
 floor 430
 insulation 430
 mortuary 402
 panel fiberglass 429
 partition 430
 residential 385
 walk-in 430
 Refrigerator door 262
 Refuse chute 452
 hopper 452
 Register air supply 513
 cash 382
 return 513
 steel 513
 wall 513
 Reglet 237
 aluminum 237
 galvanized steel 237
 Regulator pressure 475
 steam pressure 475
 Reinforced concrete pipe 639
 culvert 639
 plastic panel fiberglass 330
 PVC roof 779
 Reinforcement 231
 welded wire 780
 Reinforcing 779
 accessories 65
 bar chair 65
 bar tie 65
 bars splicing 67
 beam 68
 chair subgrade 66
 coating 69
 column 68
 concrete 68
 dowel 69
 elevated slab 68
 epoxy coated 69
 footing 68
 galvanized 69
 girder 68
 glass fiber rod 69
 high chair 65
 joint 94
 joist chair 65
 masonry 94
 metric 778
 slab 68
 sorting 69
 spiral 68
 steel 778, 779

steel fiber	71	folding partition	360	Ripper attachment	675	EPDM	230
synthetic fiber	71	garage	439	Riprap and rock lining	600	exhauster	510
testing	15	gas water heater	483	Riser pipe wellpoint	677	expansion joint	237
tie wire	67	greenhouse	434	rubber	322	fan	510
tubing paper	66	gutting	34	stair	325	fiberglass	223
wall	68	heat pump	550	terrazzo	325	fill	789
Relay pipe	586	hinge	287	wood stair	198	frame opening	129
Release door	567	kitchen sinks	485	River stone	51	framing removal	32
Relief valve P&T	465	lavatory	484, 488	Rivet	124	gravel	511
valve self-closing	465	lighting	548	aluminum	124	hatch	239
valve temperature	465	load center	545	copper	124	hatch removal	209
vent ventilator	514	lock	284	stainless	124	insulation	215, 437
Relining sewer	632	oil water heater	483	steel	124	jack	181
Remediation plan	40, 43	overhead door	265	tool	124	jack residential	511
plan/method asbestos	40	refrigeration	385	Road base	611	joint	238
Removal air conditioner	496	roof jack	511	berm	615	lead	232
asbestos	41	service	545	mixer	675	membrane green	221
bathtub	463	sinks	485	sign	353	metal	222
block wall	31	smoke detector	549	sweeper	675	metal rafter framing	149
boiler	496	stair	197	temporary	22	metal tile	221
catch basin	29	storm door	247	Roadway lighting	563	metal truss framing	151
concrete	29	switch	545	plate	676	mineral	232
concrete pipe	30	transition	511	Robe hook	363	modified bitumen	229
curb	29	wall cap	511	Rock bolt drilling	582	mop	229
driveway	29	wash bowl	484	bolting	599	nail	167
fixture	463	washer	385	drill	28, 582	panel aluminum	222
floor	31	water heater	386, 549	removal	582	panel preformed	222
guide rail	30	water heater electric	482	trencher	671	patch	208
hydrant	30	wiring	545, 549	Rod backer	242	PIB	230
insulation	41	Resilient base	322	closet	369	polyvinyl-chloride	231
lavatory	463	floor	323	curtain	362	purlin	185
masonry	30	pavement	618	ground	539	PVC	231
paint	44	Resistance corrosion	632	shower	362	rafter bracing	148
pipe	30	Respirator	40	tie	129, 600	rafter bridging	149
pipe insulation	41	personal	40	weld	125	rafters framing	181
plumbing fixtures	463	Resquared shingle	219	Roll ridge	223	reinforced PVC	231
railroad track	30	Restaurant furniture	417	roof	227	resaturant	208
refrigerant	43	range	390	roofing	232	roll	227
shingle	209	Restoration gypsum	300	type air filter	515	rolling	271
sidewalk	30	masonry	93	Roller compaction	587	safety anchor	21
sink	463	mortar	93	sheepsfoot	587, 670	sheathing	186, 187
sod	627	window	44	tandem	670	sheet metal	232
steel pipe	30	Retaining wall	74, 623	vibratory	670	shingle	218
stone	30	roll concrete segmental	622	Rolling door	261, 270	shingle asphalt	218
stump	576	wall formwork	58	earth	598	single-ply	230
tank	38	wall segmental	623	grille support	247	slate	219, 799
tree	575, 576	wall stone gabion	623	ladder	20	soffits framing	150
urinal	463	walls cast concrete	622	roof	271	soil mixture green	221
vat	41	walls stone	623	service door	262	specialties prefab	235
water closet	463	Retarder concrete	75	tower scaffold	20	stainless steel	232
water fountain	463	vapor	217	Roll-up exterior shutter	370	steel	222
water heater	463	Retractable lateral arm awning	370	shutter	370	stressed skin	129
water softener	463	Return register	513	Roman brick	98	system green	221
window	246	Revolving darkroom	430	Romex copper	538	thermoplastic polyolefin	231
Removal/salvage material	34	dome	438	Roof accessories	239	tile	221
Remove bolts	116	door	263, 269, 433	adhesive	227	TPO	231
nuts	116	door darkroom	263	aluminum	222	truss	188
Rendering	10	entrance door	269	baffle	240	vent	238, 438
Rental equipment	668	Rewind table	392	beam	188	ventilator	239
Repellent water	343	Rib lath	306	bracket	20	ventilator plastic	509
Replace joint sealant	208	Ribbed siding	223	built-up	227, 228	walkway	229
Replacement pavement	612	waterstop	64	cant	181, 228	zinc	232
Resaturant roof	208	Ridge board	181	coating	208	Roofing & siding preformed	222
Residential alarm	549	cap	218, 222	cold-applied built-up asphalt	227	built-up	799
appliance	384, 549	flashing	437	copper	232	cold	227
applications	545	roll	223	CSPE	230	demolition	42, 209
bathtubs	485	vent	238	curb	182	flat seam sheet metal	232
closet door	250	Rig drill	28	deck	185	membrane	227
device	545	Rigid anchor	94	deck gypsum	83	modified bitumen	229
dishwasher	385	conduit in trench	543	deck insulation	215	roll	232
door	201, 250, 255	in slab conduit	543	deck laminated	185	single ply	230
door bell	548	insulation	212	deck wood	185	SPF	231
dryer	385	joint sealant	244	decking	139	system built-up	228
elevator	447	Ring boxing	396	dome	270	Rooftop air conditioner	525
fan	549	split	168	drains	481	multizone air cond.	525
fixture	548	toothed	168	elastomeric	231	Room acoustical	431

Index

audiometric	430	Salvage or disposal	34	critical path	14	Sealcoat	610
clean	429	Samples field	46	progress	14	Sealer floor	51
equipment operating	401	Sampling air	40	School cabinet	411	joint	242, 243
humidifier	531	Sanctuary pew	420	crosswalk	649	pavement	618
Rope decorative	380	Sand	93	door hardware	282	Seals compression	242
exercise	396	brick	51	equipment	396	Seamless floor	326
safety line	21	concrete	51	furniture	418	Seating church	403
steel wire	135	fill	574	hinge	287	movie	392
Rosewood door	252	screened	93	junic device door hardware	282	Secondary treatment plant	664
Rotary crawler drill	672	seal	610	T.V.	571	Sectional door	205, 266
hammer drill	672	Sandblast finish concrete	78	Scissor gate	358	overhead door	265
Rototiller	670	glass	292	lift	657, 671	Security and vault equipment	380
Rough buck	179	Sandblasting equipment	674	Scoreboard baseball	397	barrier	380
hardware	176	metal	116	basketball	397	bollard	649
stone wall	107	Sander floor	674	football	397	doors and frames	263
Rough-in drinking ftn. deck	492	Sanding	332	hockey	397	driveway gate	264
drinking fountain floor	492	floor	321	Scored block	102	driveway gate aluminum	264
drinking fountain wall	492	flintstone	109	split face block	102	driveway gate steel	264
sink countertop	485	flagging	615	SCR brick	98	driveway gate wood	264
sink raised deck	485	Sandwich panel	223	Scraper earth	670	fence	621
sink service floor	488	panel aluminum	224	elevating	585	film	295
sink service wall	488	panel skylight	281	excavation	585	gate	358
tub	485	wall panel	224	mobilization	21	gate driveway	264
Round bar fiberglass	203	Sanitary base cove	314	self propelled	585	gate opener driveway	264
diffuser	512	drain	479	Scratch coat	325	hinge	287
rail fence	621	Sash	438	Screed base	66	mesh	307
table	417	aluminum	271	Screed, gas engine	66	planter	649
tube fiberglass	203	metal	272	8HP vibrating	668	Sash	272
Rowing machine	396	prefinished storm	438	Screed holder	66	screen	158, 272
Rub finish carborundum	78	security	272	Screen chimney	364	seal	289
Rubber astragal	289	steel	272	entrance	351	turnstile	380
base	322	wood	274	fence	622	vault door	264
coating	212	Sauna	431	metal	272	vehicle barriers	649
control joint	94	door	431	molding	194	Sediment bucket drain	479
dock bumper	379	Saw brick	90	projection	349, 392	strainer Y valve	406
floor	323	chain	674	security	158, 272	Seeding	627, 820
floor tile	323	circular	674	sight	360	See-saw	398
nosing	322	concrete	668	squirrel and bird	364	Segmental conc. retaining walls	622
pavement	618	masonry	674	urinal	357	retaining wall	623
pipe insulation	469	shop	394	window	272, 277	Seismic bracing	807
riser	322	table	394	wood	277	bracing supports	406
sheet	323	Sawcutting concrete floor	85	Screened sand	93	Selective clearing	576
stair	322	concrete wall	85	Screening plant	670	demolition equipment	370
threshold	286	slab	85	Screen storm door aluminum	247	demolition fencing	30
tile	524	Saving masonry	90	Screw aluminum	224	demolition masonry	91
waterproofing	211	Sawn control joint	229	anchor	66, 121	tree removal	570
waterstop	64	SBS modified bitum. membrane	77	anchor bolt	66	Self-closing relief valve	465
Rubberized asphalt sealcoat	610	Scarf aluminum plank	21	brass	167	Self-contained air conditioner	526
Rubbing wall	78	baseplate	19	drywall	314	Self-propelled scraper	585
Rubbish chute	33	bracket	19	eye bolt	66	Self-supporting tower	645
handling	33	caster	19	jack	600	Sentry dog	24
Rumble strip	650	catwalk	20	lag	123	Separation barrier	40, 45
Running track	322	frame	19	liquid chillers	524	Separators air	502
track surfacing	618	guardrail	19	machine	123	Septic galley	638
trap	478	mason	18	sheet metal	167	system	638
Rupture testing	15	putlog	20	steel	167	tank	638
		rolling tower	20	water chillers	524	tank concrete	638
		specialties	20	wood	167	tank precast	638
		stairway	19	Screw-on connector	537	Service door	261
		wood plank	19, 21	Scroll water chiller	523	electric	557
		Scalloping	771	Scrub station	401	entrance cable aluminum	538
		plank	19	Scupper drain	481	residential	545
		tubular	18	floor	481	sink	488
		Scale	373	Seal curb	610	sink faucet	489
		commercial	373	door	379	station equipment	378
		contractor	374	fog	610	Services laboratory analytical	46
		crane	373	grout	315	Seawage aeration	664
		physician's	400	pavement	610	collection concrete pipe	637
		pit	373	security	289	collection PVC pipe	637
		portable	374	Sealant	210, 218	ejector pump	480
		truck	373	acoustical	244, 312	holding tank	664
		warehouse	373	caulking	243	municipal waste water	664
		Scanner checkout	381	control joint	78	pipe	637-639
		Scanly concrete	301	replacement joint	208	treatment plants	664
		Schedule	14	rigid joint	244	Sewage/drainage collection	639
		board	351	tape	244	Sewer relining	632

S

Shade	408	strip	218	concrete	610	darkroom	384
Shaft wall	302	wood	219	removal	30	faucet kitchen	486
Shake wood	219	Ship ladder	152	temporary	24	kitchen	485
Shape structural aluminum	133	Shock absorber	476	Sidewalks driveways and patios	610	laboratory	393, 394
Shear connector welded	125	absorber pipe	477	Sidewall bracket	20	laundry	486
plate	168	absorbing door	246, 267	Siding aluminum	223	lavatory	484
test	16	Shooting range	397	bevel	225	mop	488
wall	187	Shop drill	394	cedar	225	raised deck rough-in	485
Shearwall panel	184	equipment	394	fiber cement	227	removal	463
Sheathed nonmetallic cable	538	Shores post	63	fiberglass	223	service	488
Romex cable	538	Shoring	600, 601	metal	222, 223	service floor rough-in	488
Sheathing	186, 187	aluminum joist	62	nail	167	service wall rough-in	488
asphalt	187	baseplate	19	paint	335	support	489
gypsum	187	bracing	19	painting	335	sinks residential	485
paper	217	concrete formwork	62	panel aluminum	223	Site clear and grub	575
roof	186, 187	concrete vertical	62	plywood	225	cleaning	575
roof & walls plywood	186	flying truss	62	railroad	651, 821	demolition	29
wall	187	frames	63	redwood	225	furnishings	421
Sheepsfoot roller	587, 598	heavy duty	19	removal	209	improvement	421, 620, 625
Sheet base	229	leveling jack	19	ribbed	223	plan	10
carpet	327	slab	20	steel	224	preparation	28
glass	294	steel beam	62	vinyl	226	Skidder log	670
metal	232	temporary	601	wood	225	Skidsteer attachments	671
metal aluminum	235	Short load concrete	75	Sieve analysis	15	loader	671
metal flashing	233	Shot blast floor	301	Sign	24, 352, 353	Skylight	280
metal roof	232	blaster	674	aluminum	352	fiberglass panel	438
metal screw	167, 224	Shotcrete	79	base formwork	56	glass block	281
piling	600, 819	pump	668	comdoor	352	plastic	280
steel piles	604	Shoulder paver	675	directional	353	removal	209
vinyl	295	Shovel	583	flexible	352	Skyroof	270
Sheeting	600	crawler	670	letter	352	Slab blackout formwork	56
driver	672	Shower arm	486	posts	353	box out opening formwork	55
open	603	built-in	486	project	24	bulkhead formwork	55, 56
tie back	603	by-pass valve	487	reflective	353	concrete	72
wale	600	cabinet	357	road	353	concrete placement	76
wood	586, 600, 819	compartments	357	street	352	curb formwork	55, 56
Sheets lead	442	cubicle	486	traffic	353	cutout	32
Shelf bathroom	362	door	357	Signage engraved panel	352	edge form	140
bin	368	drain	478	exterior	352	edge formwork	55, 56
library	419	emergency	491	Signal bell fire	571	elevated	72
metal	368	enclosure	357	systems traffic	649	flat plate formwork	54
Shellac door	339	glass door	357	Silencer duct	507	joist dome formwork	55
Shell-type heat exchanger	522	group	488	Silica chips	51	joist pan formwork	54
Shelter aluminum	440	pan	233	Silicon carbide abrasive	50, 77	lift	73, 786
dock	379	partition	109, 357	Silicone	242	lifting insert	66
golf	398	polypropylene	486	caulking	243	on grade	73
rail dock	379	receptor	357, 486, 488	coating	212	on grade formwork	56
temporary	52	rod	362	water repellent	212	on grade post-tensioned	70
Shelving	369	safety	491	Sill	109	on grade removal	30
food storage metal	588	stall	486	& ledger framing	182	pan	72
mobile	419	surround	357	anchor	168	precast concrete channel	81
pine	369	Shower/tub control set	487	block	105	reinforcing	68
plywood	369	Shower/tub valve spout set	487	door	195, 200, 286	reinforcing bolster	65
prefinished	369	Shredder	403	masonry	110	sawcutting	85
refrigeration	430	compactor	403	mud	182	screed formwork	57
steel	368	Shrinkage test	15	precast concrete window	83	shoring	20
storage	368	Shrub broadleaf evergreen	628	quarry tile	316	stamping	78
wood	369	deciduous	629	stone	108, 110	textured	73
Shield expansion	121	evergreen	628	window	274	thickened edge	73
lag screw	121	moving	630	wood	182	trench formwork	57
light	650	Shrubs and trees	628	Silcock hose bibb	487	void formwork	55, 57
Shielded copper cable	535	Shutter	407	Silo	440	waffle	72
Shielding lead	442	exterior	201	Silos demo	425	with drop panels formwork	54
radio frequency	443	exterior roll-up	370	Silt fence	598	slate	110
Shift work	11	interior	407	Simulated brick	111	flagging	615
Shingle	218	wood	201	stone	112, 113	pavement	110
aluminum	218	wood interior	407	Single hub pipe	478	roof	219, 799
asphalt	218	Side coiling grille	261	hung window	271	shingle	219
cedar	219	light door	257	ply roofing	230	sidewalk	615
concrete	220	Sidelight	201	precast concrete tee beam	81	sill	110
metal	218	door	250	zone rooftop unit	525	stair	110
panelized	219	Sidewalk	320, 614	Single-ply roof	230	tile	320
removal	209	asphalt	610	Sink barber	382	starwall	330
roof	218	brick	614	base	409	Sleeper floor	182
slate	219	bridge	20	countertop	485	wood	182
steel	218	broom	674	countertop rough-in	485	Sleepers framing	182

Index

Sleeve anchor bolt	60	test	76	paint	673	marble	109
dowel	69	treatment	599	Spread footing	73	metal pan	152
formwork	63	Solar energy	521	footing formwork	56	metal plate	152
plastic pipe	63	energy circulator air	521	Spreader aggregate	668, 675	nosing	322, 324
Slide gate	619	energy system collector	521	chemical	675	parts wood	197
playground	398	energy system controller	521	concrete	673	prefabricated wood	197
swimming pool	428	energy sys. heat exchanger	521	laundry	382	railroad tie	611
Sliding aluminum door	260	film glass	295	Spring bolt astragal	289	removal	165
chalkboard	349	heating	813	bronze weatherstrip	289	residential	197
door	251	heating system	520	hinge	287	riser	325
door shower	357	panel driveway security gate	264	Sprinkler alarm	571	riser vinyl	323
door steel	251	screen block	105	head	457	rubber	322
entrance door	269	Soldier beam	602	irrigation system	625	slate	110
glass door	260	Solid core door	253	system accelerator	458	spiral	158, 197
glass vinyl-clad door	260	surface countertops	413	system dry-pipe	458	stringer	325
mirror	363	wood door	255	systems	457, 625	stringer framing	179
panel door	270	Sorting reinforcing	69	Square bar fiberglass	203	stringer wood	179
partition	361	Sound attenuation blanket	331	tube fiberglass	203	temporary protection	23
window	272, 274	control demo	425	Squash court	432	terrazzo	324
Slipform paver barrier	675	curtain	441	court backstop	399	tread	108, 157, 322
paver curb	675	dampening panel gypsum	312	Stabilization fabric	611	tread fiberglass	203
Slipforms	775	movie	392	soil	599	tread insert concrete	63
Slope protection	598	panel	441	Stabilizer base	676	tread terrazzo	325
protection rip-rap	600	proof enclosure	430	Stacked bond block	102	tread tile	316
Slot letter	368	system	566	Stadium	435	treads and risers	322
Slotted block	104	system speaker	566	bleacher	435	wood	197
channel framing	128	Space heater	673	cover	433	Stairlift wheelchair	451
pipe	640	heater floor mounted	520	Stage curtain	395	Stairs & walks moving	450
Slump block	101	office & storage	17	equipment	395	disappearing	386
Slurry seal (latex modified)	610	Spade air	672	equipment demolition	376	fire escape	152
trench	603	tree	671	lighting	562	formwork	59
Small tools	22	Spundrel beam formwork	52	portable	395	precast concrete	81
Smoke detector	572	glass	294	Staging aids	20	Stairway door hardware	282
hatch	239	Speaker movie	392	pump	18	scaffold	19
vent	239	sound system	566	swing	21	Stairwork and handrails	199
vent chimney	516	station nurse	567	Stain cabinet	339	Stake formwork	64
Smokestack	97	Special construction	441	door	339	nail	64
Snap-tie formwork	63	door	259, 265	floor	341	subgrade	67
Snow fence	38	hinge	287	lumber	188	Stall shower	486
fencing	38	nurse call systems	567	siding	225	toilet	353, 355, 356
guard	239	purpose rooms demo	425	truss	312	type urinal	487
Soaking bathroom	485	Specialties	362	Stainless bar grating	155	urinal	487
tub	485	demo	348	cooling towers	524	Stamping slab	78
Soap dispenser	363	pipelng HVAC	502, 503	duct	505	texture	78
holder	363	scaffolding	20	flashing	233	Standard extinguisher	366
tink	363	telephone	353	gutter	237	Standing seam	232
Soccer goalpost	399	Specific gravity	15	plank grating	156	Standpipe alarm	571
Socket ground	398	gravity testing	15	reglet	237	connection	456
wire rope	133	Speed bump	650	rivet	124	steel	636
Sod	627	SPF roofing	231	screen	354	Starter board & switch	552, 553
tennis court	618	Spike grid	168	sign	352	motor	554
Sodding	627	Spinner ventilator	514	steel corner guard	361	Station control	558
Sodium low pressure fixture	563	Spiral reinforcing	68	steel cot	418	diaper	362
Soffit & canopy framing	182	stair	158, 197	steel countertop	412	hospital	400
drywall	310	Spire church	371	steel cross	404	transfer	403
framing wood	182	Splice pile	604, 605	steel downslope	236	weather	443
marble	109	Splicer movie	392	steel gravel stop	235	Stationary ventilator	514
metal	227	Splicing reinforcing bars	67	steel hinge	287	ventilator mushroom	514
molding	195	Split astragal	290	steel pipe	473	Steam bath	431
plaster	308	rail fence	622	steel roof	232	bath residential	431
plywood	195	rib block	102	steel shelf	363	boiler	518
polyvinyl	195, 227	ring	168	steel storefront	270	boiler electric	517
PVC	205	system control system	459	weld rod	126	clean	91
steel	436	Splitter damper assembly	507	Stair basement	197	clean masonry	90
stucco	309	Spotlight	562	basement bulkhead	81	cleaner	674
vent	297	Spotter	594	brick	107	cleaning	90
wood	195	Spray coating	210	carpet	328	cleaning metal	116
Softener water	482	insulation	215	ceiling	386	condensate meter	505
Soil compaction	587	painting booth automotive	378	climber	451	humidifier	531
decontamination	39	rig foam	672	concrete	74	jacketed kettle	390
mix man-made	221	substrate	42	concrete pan fill	63	pressure valve	505
pipe	478	Sprayed cementitious	240	electric	386	regulator pressure	475
poisoning	599	fireproofing	240	finish concrete	77	trap	503
sample	29	Sprayed-on insulation	215	floor plate	152	Steamer	390
stabilization	599	Sprayer airless	40	grating	152	Steel anchor	94
tamping	587	emulsion	672	landing	525	astragal	289

- ballistic door 263
 beam shoring 62
 beam w-shape 130
 bin wall 623
 blind 406
 blocking 176
 bolt 168
 bolt & hex nut 120
 bridge 624
 bridging 176
 building components 796
 building pre-engineered 435
 chain 158
 channel 307
 conduit in slab 543
 conduit in trench 543
 conduit intermediate 540
 conduit rigid 540
 corner guard 361
 cutting 117
 demolition 116
 detention door 264
 diffuser 513
 dome 438
 door 248, 250, 265, 436, 801
 door residential 250
 downspout 236
 drill 672
 drilling 117
 edging 611, 630
 estimating 793
 expansion tank 502
 fence 618, 620
 fiber reinforcing 71
 fibers 71
 flashing 233
 frame 247
 framing 131
 furring 304
 grating 155
 grating tread 157
 gravel stop 235
 gutter 237
 hex bolt 120
 high strength 132
 hinge 286
 lath 306
 lintel 129
 locker 366
 louver door 297
 members structural 129
 mesh box 599
 mesh grating 155
 mesh tread 157
 mill extras 132
 outlet box 541
 painting 346
 partition 359, 360
 pile 604
 piles sheet 604
 pipe 470, 639
 pipe corrugated 641
 pipe removal 30
 plate 129
 prestressing 70
 primer 346
 projects structural 131
 register 513
 reinforcement 779
 reinforcing 778, 779
 rivet 124
 roof 222
 sabotage 463
 sash 272, 801
 screw 167
 sections 795
 security driveway gate 264
 sheet pile 600
 shelving 368
 shingle 218
 siding 224
 silo 440
 standpipe 636
 structural 793
 stud NLB 304
 tank 502
 tank above ground 501
 testing 14
 tower 645
 underground duct 645
 underground storage tank 500
 valve 497
 water storage tanks 636
 weld rod 125
 well casing 637
 window 272, 438
 window demolition 246
 wire rope 135
 wire rope accessories 133
 Steeple 371
 aluminum 371
 tip pin 287
 Step 353
 bluestone 611
 brick 610
 manhole 642
 masonry 610
 railroad tie 610
 stone 109
 tapered pile 604
 Sterilizer barber 382
 dental 401
 medical 399
 Stiffener plate 129
 Stiffeners joist web 147
 Stiffleg derrick crane 677
 Stile fabric 289
 protection 289
 Stockpiling of soil 577
 Stone aggregate 628
 anchor 94
 ashlar 109
 base 109, 611
 cast 111
 column 109
 crushed 574
 cultured 112
 curbs cut 615
 fill 574
 filter 600
 floor 109
 gabion retaining walls 623
 ground cover 628
 mulch 626
 paver 108, 614
 pea 51
 removal 30
 retaining walls 623
 river 51
 sill 108, 110
 simulated 112, 113
 step 109
 stool 110
 toilet compartment 356
 tread 108
 trim cut 109
 wall 107, 108, 623
 Stool cap 195
 doctor 401
 stone 110
 window 109, 110
 Stop door 195
 gravel 235
 Stop-start control station 558
 Storage bottle 388
 box 17
 cabinet 411
 dome 438
 dome bulk 438
 metal shelving food 388
 shelving 368
 tank 500, 636
 tank cover 432
 tank demo 426
 tank steel underground 500
 tanks underground 500
 Storefront aluminum 269
 Storm door 247
 door residential 247
 drainage manholes frames 642
 drainage piping 638
 sash prefinished 438
 window 277
 window aluminum residential 277
 Stove 365, 390
 woodburning 365
 Strainer bronze body 503
 downspout 235
 gutter 237
 roof 235
 wire 236
 Y type bronze body 503
 Y type iron body 503
 Strand grouted 70
 ungrouted 70
 Stranded wire 538
 Strap tie 168
 Straw 626
 bale construction 440
 Street sign 352
 Streetlight 563
 Strength compressive 15
 Stressed skin roof 129
 Stringer stair 325
 stair terrazzo 325
 Strip cabinet 567
 chamfer 60
 entrance 267
 filler 289
 floor 321
 footing 73
 lighting 560
 rumble 650
 shingle 218
 soil 577
 Striper paint 675, 676
 Stripping topsoil 577
 Strobe light 562
 Structural aluminum 133
 backfill 587
 brick 97
 columns 126
 compaction 598
 excavation 581
 fabrication costs 132
 face tile 99
 facing file 98
 fee 10
 framing 794
 insulated panel 184
 panel 184
 shape column 127
 steel 793
 steel members 129
 steel projects 131
 tile 98
 welding 117, 132
 Structure fabric 432
 moving 37
 tension 433
 Stub switchboard 555
 Stucco 309
 demolition 301
 mesh 306
 painting 335
 walls coating 345
 Stud demolition 165
 metal 302
 NLB metal 304
 NLB steel 304
 NLB wall 304
 partition 179, 307
 partition framing load bearing 143
 wall 179, 182, 303
 wall blocking load-bearing 141
 wall box beams load-bearing 142
 wall bracing load-bearing 141
 wall framing load bearing 143
 wall headers load-bearing 142
 wall wood 303
 welded 125
 wood 183, 302
 Stump chipper 670
 chipping 575
 removal 576
 Subcontractor O & P 13
 Subdrainage pipe 641
 system 641
 Subfloor 186
 adhesive 186
 plywood 186
 wood 186
 Subgrade reinforcing chair 66
 stake 67
 Submersible pump 481, 637, 673
 sump pump 481
 Subpurlin bulb tee 83
 bulbtee 133
 Subpurlins 796
 Subsoil heating 429
 Subsurface exploration 29
 Suction hose 673
 Sump hole construction 586
 pit 586
 pump 386, 481
 pump submersible 481
 Super high-tensile anchor 599
 Supermarket checkout 381
 scanner 381
 Supply ductile iron pipe water 633
 Support carrier fixture 489
 ceiling 126
 drinking fountain 489
 framing pipe 129
 lavatory 489
 light 126
 monitor 126
 motor 126
 partition 126
 sink 489
 urinal 490
 water closet 490
 water cooler 491
 X-ray 126
 Suppressor lighting 545
 Surface bonding 92
 countertops solid 413
 landscape 328
 playground 323
 preparation exterior 332
 preparation interior 333
 raceway 556
 Surfacing 610
 Surfactant 42

- Surgery equipment 401
table 400
Surgical lighting 400
Surround shower 357
tub 358
Surveillance system TV 570
Survey aerial 28
crew 24
monument 28
preblast 582
property line 28
stake 24
topographic 28
Suspended acoustic ceiling tiles 317
ceiling 306, 317
ceiling framing 177
Suspension mounted heater 520
system ceiling 318
Sweeper road 675
Swell testing 15
Swimming pool 427
pool blanket 428
pool demo 426
pool enclosure 434
pool equipment 428
pool filter 493
pool filtration 493
pool heater 519
pool hydraulic lift 428
pool ladder 428
pool painting 428
pool ramp 428
pools 806
Swing 398
check valve 464
check valve bronze 464
clear hinge 287
gate 619
staging 21
Swing-up overhead door 266
Switch box 541
bus-duct 555
decorator 545
dimmer 545, 557
electric 556, 557
general duty 557
residential 545
safety 557
toggle 556
Switchboard distribution 552
electric 558
feeder section 552
incoming 551
instrument 550
pressure switch 552
stub 555
w/CT compartment 551
Switching low-voltage 556
Switchplate low-voltage 556
Synthetic erosion control 598
fiber reinforcing 71
fibers 71
marble 320
turf 323
System components foam-water 458
control 499
fire extinguishing 458
grinder pump 480
irrigation 625
septic 638
sprinkler 458
subdrainage 641
tube 452
TV 566
TV, surveillance 570
UHF 566
- VIII 566
Systems sprinkler 457, 625
- ## T
- Table folding 417
laboratory 394
massage 396
overbed 419
physical therapy 400
reading 419
rewind 392
round 417
saw 394
surgery 400
Tackboard fixed 350
Tampor 578, 672
Tamping soil 587
Tandem roller 670
Tank above ground steel 501
clean 38
cover 432
darkroom 384
developing 384
disposal 38
expansion 502
fiberglass 500
fixed roof 501
gasoline 501
holding 664
horizontal above ground 501
hubbard 400
leak detection 572
pillow 636
removal 38
septic 638
soap 363
steel 502
steel underground storage 500
storage 500, 636
testing 16
water 636, 675
water storage solar 521
Tankless gas water heaters 483
Tap box bus-duct 555
Tape barricade 23
detection 633
sealant 244
temporary 617
underground 633
Tar kettle 674, 676
paper 626
pitch emulsion 610
rural 208
Target range 397
Tarpuilin 22
duck 22
nylar 22
polyethylene 22
polyvinyl 22
Tared felt 229
Tax 11
sales 11
social security 12
unemployment 12
Taxes 765
T-bar mount diffuser 512
Teak floor 521
molding 191
paneling 196
Technician inspection 16
Tee cleanout 468
pipe 472
precast concrete beam 80
Tees precast 81
- Telephone enclosure 353
enclosure commercial 353
house 567
manhole 644
pole 644
receptacle 548
specialties 353
Telescoping bleacher 420
door 266
platform 395
Television equipment 566
receptacle 548
Teller automatic 381
window 381
Temperature relief valve 465
rise detector 571
Tempered glass 292
glass greenhouse 434
hardboard 195
Tempering valve 465
valve water 465
Temporary building 17
construction 16, 22
facility 23
fence 23
guardrail 23
heat 16, 52
light 16
lighting 16
protection 25
ramp 22
road 22
road painting 617
shelter 52
shoring 601
tape 617
toilet 674
utilities 16
Tennis court air supported 433
court backstop 620
court clay 618
court fence 620, 621
court fences and gates 620
court net 618
court painting 618
court post 618
court sod 618
court surface 327
court surfacing 618
Tensile test 15
Tension structure 433
structures demo 427
Tenninal A/C packaged 526
air conditioner packaged 526
heater 528
lug 537
Termination box 567
Terminations cable 537
Termite control chemical 599
protection 599
Teme coated flashing 233
Terra cotta 99, 100
cotta coping 112
cotta demolition 32, 302
cotta tile 100
Terrazzo 324
abrasive 324
base 324
conductive 325
demolition 301
epoxy 325, 326
floor 324, 805
monolithic 324
precast 324
receptor 357
stair 324
- venetian 324
wainscot 324, 325
Test beam 15
equipment laboratory 393
load pile 574
moisture content 16
pile load 574
pits 29
soil 16
ultrasonic 16
well 637
Testing 14
lead 43
OSHA 42
pile 574
sulfate soundness 15
tank 16
Texture stamping 78
Textured slab 73
Theater and stage equipment 395
Theatrical lighting 562
Thermal & moist protect demo 208
batt 331
Thermometer 393
Thermoplastic 295
painting 617
polyolefin roof 231
Thermostat control sys. radiator 499
integral 531
wire 550
Thimble wire rope 133
Thin brick veneer 96
plaster partition 303
Thincoat plaster 309
Thinning tree 575
Thinset ceramic tile 314
mortar 316
Threaded rod fiberglass 203
Threshold 286
aluminum 286
door 201
stone 109
wood 195
Thru-wall air conditioner 526
Ticket booth 440
dispenser 378
Tie back sheeting 603
rafter 181
railroad 611, 630
rod 129, 600
strap 168
wall 91
wire reinforcing 67
Tier locker 367
Tile 314, 316, 323
abrasive 315
aluminum 221
carpet 327
ceiling 318
ceramic 314
clay 220
concrete 220
cork 323
cork wall 329
demolition 300
exposed aggregate paver 614
exterior 315
fire rated 98
flue 111
glass 294
grout 315
marble 316
metal 316
or terrazzo base floor 325
partition 99
porcelain 314

- quarry 315
 roof 221
 roof metal 221
 rubber 324
 slate 320
 stainless steel 316
 stair tread 316
 structural 98
 terra cotta 100
 vinyl 323
 wall 315
 waterproofing membrane 316
 ceramic 316
 window sill 316
 Tiling ceramic 314, 316
 Tile-up concrete 789
 concrete wall panel 83
 precast concrete wall panel 83
 Timber connector 167
 fastener 166
 framing 185
 guide rail 650
 heavy 185
 laminated 188
 piles 604
 switch ties 648
 switch ties railroad 648
 ties railroad 648
 Time lapse photography 14
 lock 264
 system controller 567
 Timer clock 548
 interval 545
 Tin ceiling 319
 clad door 255
 Tinted glass 292
 Toaster 390
 Toggle switch 556
 Toggle-bolt anchor 121
 Toilet 664
 accessories commercial 362
 accessory 362
 bowl 484
 chemical 674
 compartment plastic 356
 compartment plastic-laminate 355
 compartment stone 356
 compartments 353
 partition 109, 353, 355, 356
 partition removal 302
 prison 381
 stall 353, 355, 356
 stone partition 356
 temporary 674
 tissue dispenser 363
 Tool powder actuated 124
 nvet 124
 Tools small 22
 Toothed ring 168
 Tooothing masonry 32
 Top coiling grille 261
 demolition counter 166
 dressing 627
 vanity 414
 Topographic survey 28
 Topping concrete 77
 epoxy 326
 floor 77
 grout 84
 Topsoil 574, 577
 placement and grading 627
 stripping 577
 Torch cutting 117, 674
 cutting demolition 34
 Touch bar 284
 Towel bar 363
 dispenser 362
 Tower control 441
 cooling 524
 crane 18, 676, 772
 hoist 677
 light 673
 radio 645
 TPO roof 231
 Track accessories 648
 accessories railroad 648
 curtain 395
 drawer 410
 drill 671
 heavy rail railroad 648
 maintenance railroad 648
 material 648
 running 322
 surface 327
 traverse 406
 Tractor 587
 loader 670
 rake 670
 truck 674
 Traffic barriers highway sound 624
 channelizing 650
 cone 23
 control pedestrian 380
 door 267
 line 617
 line remover 676
 sign 353
 signal systems 649
 Trailer bunk house 17
 floodlight 672
 lowbed 675
 mud 675
 office 17
 platform 674
 truck 674
 water 674
 Trainer bicycle 396
 Training 25
 Tram car 674
 Transceiver 566
 Transfer station 403
 Transformer 550
 & bus-duct 551, 555
 cabinet 556
 current 550
 dry-type 551
 fused potential 550
 low-voltage 556
 oil-filled 550
 Transition molding wood 321
 residential 511
 strip floor 327
 Transom aluminum 269
 lite frame 248
 windows 276
 Transplanting plant and bulb 630
 Trap cast iron 478
 deep seal 478
 drainage 478
 grease 479
 inverted bucket steam 503
 rock surface 77
 steam 503
 Trash closure 421
 compactor 391
 pump 674
 receiver 415
 receptacle 421
 receptacle fiberglass 421
 receptacle metal 415
 Travel nursery items 628
 Traverse 406
 track 406
 Travertine 109
 Tray cable 542
 ladder type cable 542
 Tread abrasive 316
 aluminum cast 157
 aluminum grating 157
 bronze cast 157
 cast iron 157
 rubber 322
 stair 108, 157
 steel grating 157
 steel mesh 157
 stone 109, 110
 vinyl 322
 wood stair 198
 Treadmill 396
 Treads and risers stair 322
 Treated lumber 182
 lumber framing 182
 pile 604
 pine fence 622
 Treatment acoustical 331
 equipment 400
 plant secondary 664
 plants sewage 664
 potable water 482
 Tree evergreen 628
 guying systems 630
 moving 630
 removal 575, 576
 removal selective 576
 spade 671
 thinning 575
 Trees deciduous 629
 Trench backfill 578, 580
 box 674
 cover 156
 drain 481
 drain fiberglass 481
 drain polymer 481
 drains plastic 481
 duct 543
 duct fitting 544
 duct steel 544
 excavating 577
 excavation 577, 580
 for disposal field 638
 grating frame 156
 slurry 603
 utility 580
 Trencher chain 580, 671
 rock 671
 wheel 671
 Trenching 582, 586
 Trial batch 15
 Trim demolition 166
 exterior 194
 exterior paint 337
 molding 194
 painting 342
 PVC 204
 redwood 194
 tile 314
 wood 194
 Triple brick 98
 weight hinge 287
 Tripod floodlight 672
 Troffer air handling 560
 light fixture 561
 Trolley rail 361
 Trowel coating 210
 concrete 668
 power 668
 Truck boom 676
 concrete 668
 crane flatbed 676
 dock 379
 dump 671
 flatbed 671, 674
 holding concrete 75
 leveler 379
 loading 581
 mounted crane 676
 pickup 674
 scale 373
 tractor 674
 trailer 674
 vacuum 675
 winch 674
 Truss bowstring 188
 framing metal 151
 joist 139
 metal roof 132
 painting 342
 plate 168
 roof 188
 stain 342
 varnish 342
 Tub bar 362
 rough-in 485
 soaking 485
 surround 358
 Tube framing 267
 pneumatic 381
 system 452
 system air 452
 system pneumatic 452
 Tubing copper 470
 electric metallic 510
 electrical 510
 fittings PEX 530
 PEX 474, 530
 Tubular fence 620
 lock 284
 scaffolding 18
 Tugboat diesel 678
 Tumbler holder 363
 Tunnel locomotive 676
 muck car 676
 ventilator 676
 Turf artificial 618
 synthetic 323
 Turnbuckle wire rope 134
 Turned column 200
 Turnout railroad 651
 Turnstile 380
 security 380
 TV closed circuit camera 570
 system 566
 T.V. systems 566
 Two piece astragal 290
 Tying wire 62
 Tyton joint 633

U

- UHF system 566
 Ultrasonic cleaner 401
 motion detector 570
 test 16
 Uncased drilled concrete piers 607
 Underdrain 642
 Underdrain vent 297
 Underfloor duct 544
 duct electrical 544
 duct fitting 544
 Underground duct 644
 electrical & telephone 644
 storage tank removal 773
 storage tank steel 500

Index

storage tanks	500
tape	633
Underlayment	186
acoustical	331
gym floor	322
hardboard	186
latex	322
self-leveling cement	84
Underpin foundations	602
Underwater light	428
Undisturbed soil	15
Unemployment tax	12
UngROUTED bar	70
strand	70
Unit commercial kitchen	383
heater	520, 528
heaters propeller	529
Units convector	529
Upstanding beam formwork	53
Urethane foam	331
insulation	430
wall coating	346
Urinal	487
high efficiency	489
removal	463
screen	357
stall	487
stall type	487
support	490
wall hung	487
waterless	487
watersaving	487
Um ash	415
Utensil washer medical	399
Utilities temporary	16
Utility accessories	633
boxes	632
brick	98
duct	644
electric	645
pole	562, 644
pole wood electrical	644
set fan	509
sitework	644
temporary	16
trench	580
trench excavating	580

V

Vacuum breaker	476
catch basin	675
central	383
cleaning	383
loader	40
pick-up	668
truck	675
unit central	660
wet dry	675
Valance board	409
Valley flashing	218
gutter	437
rafter	181
Valve	463, 465, 496, 497
assembly sprinkler deluge	458
backwater	480
ball	466
brass	463
bronze	463
butterfly	496
cabinet	366
check	456, 497
check swing	497
CPVC	466
fire hose	457

flush	489
foot	466
gas stop	463
gate	496, 497
globe	497
hot water radiator	503
iron body	496
mixing	487
plastic	465
polypropylene	466
PVC	465
relief pressure	465
shower by-pass	487
soldered gate	464
spout set shower-tub	487
sprinkler alarm	456
steam pressure	503
steel	497
swing check	464
tempering	465
water pressure	465
Y sediment strainer	466
Valves forged	497
Vandalproof fixture	561
Vane-axial fan	508
Vanity base	410
top	414
top lavatory	484
Vapor barrier	217, 430
barrier sheathing	187
retarder	217
Vaportight fixture incandescent	561
Varnish cabinet	339
casework	339
door	339
floor	341, 344
polyurethane	346
truss	342
Vat removal	41
Vault day gate demolition	376
door	264
front	264
Vaulting side horse	396
VCT removal	301
Vehicle barriers security	649
guide rails	650
Veneer ashlar	108
brick	95
core paneling	196
granite	108
members laminated	188
removal	92
Venetian blind	406
terrazzo	324, 325
Vent automatic air	502
box	94
brick	93
chimney	516
chimney all fuel	516
chimney fitting	517
chimney high temperature	517
chimney increaser	517
dryer	386
exhaust	514
flashing	479
for convector or bsrd air	529
foundation	95
gas	516
intake-exhaust	514
metal chimney	516
one-way	239
ridge	238
ridge stnp	297
roof	238, 438
smoke	239
soffit	297

Ventilated metal deck	141
Ventilating air conditioning	499, 506, 507, 509, 510, 514, 523, 524, 526
Ventilation	811
equipment and hood	515
fan	549
louver	297
Ventilator control system	499
fan	508
masonry	94
mushroom stationary	514
relief vent	514
roof	239
spinner	514
stationary mushroom	514
tunnel	676
Venturi flow meter	504
Verge board	194
Vermiculite cement	240
insulation	214
plaster	308
Vertical blinds	406
lift door	266
metal ladder	152
Very low density polyethylene	37
VHF system	566
Vials and bottles	46
Vibrating screed, gas engine	608
8HP	124
Vibration pad	628
Vibrator concrete	668
earth	578, 587, 598
plate	587
plow	671
Vibratory hammer	670
roller	670
Vibroflotation	601
compaction	819
Video surveillance	571
Videotape recorder	571
Vinyl blind	202, 406
casement window	279
clad premium window	276
coated fence	620
composition floor	323
curtain	362
downspout	236
faced wallboard	310
floor	324
glass	295
gutter	237
lead barrier	331
picture window	279
roof	231
sheet	295
sheet floor	323
siding	226
stair riser	323
stair tread	323
tile	323
tread	322
wall coating	346
wallpaper	329
window	277-280
window double hung	278
window single hung	277
Vision panel	280
Vocational kiln	394
shop equipment	394
Voltmeter	550
Volume control damper	506, 507

W

Waffle slab	72
-------------	----

Wainscot ceramic tile	314
molding	194
quarry tile	316
terrazzo	324, 325
Wale sheeting	600
Wales	600
Walk	610
moving	451
Walk-in refrigeration	430
Walkway cover	371
roof	229
Wall & corner guards	561
accessories formwork	64
aluminum	223
blocking load-bearing stud	141
box beams load-bearing stud	142
boxout formwork	57
bracing load-bearing stud	141
brick	107
brick shelf formwork	57
bulkhead formwork	57
bumper	285, 361
buttress formwork	57
cabinet	409, 411, 412
canopy	370
cap residential	511
cavity	107
ceramic tile	315
clock	415
coating	345
concrete	73
concrete finishing	78
concrete placement	76
concrete segmental retaining	622
corbel formwork	57
covering	805
cross	404
curtain	270
cutout	32
demolition	301
drywall	510
exhaust fan	510
fan	510
finishes	329
flagpole	573
forms	775
formwork	57
foundation	103
framing	182
framing load bearing stud	143
framing removal	52
fumace	520
furring	183, 304
grout	93
guard	361
headers load-bearing stud	142
heater	386
hung lavatory	485
hung urinal	487
hydrant	477
insulation	212, 437
lath	306
liner formwork	58
lintel formwork	58
louver	297
masonry	100, 623
mat	396
mirror	294, 295
NLB partition	302
painting	335, 343, 344
panel	111
panel brick	106
panel precast	82
panel precast concrete double	81
panel woven wire	358
paneling	196

- partition 302
- plaster formwork 59
- plaster 308
- plug 95
- plywood formwork 57
- precast concrete 82, 789
- prefab plywood formwork 58
- register 513
- reinforcing 68, 779
- retaining 74, 623
- rubbing 78
- screens 360
- shaft 302
- shear 187
- sheathing 187
- sill formwork 58
- steel bin 623
- steel framed formwork 59
- stone 107, 108
- stone gabion retaining 623
- stucco 309
- stud 179, 182, 302, 303
- stud NLB 304
- switch plate 557
- tie 94
- tie masonry 94
- tile 315
- tile cork 329
- um ash receiver 363
- window 268, 270
- wood stud 303
- Wallboard repair gypsum 300
- Wallcovering 329
 - acrylic 329
 - gypsum fabric 329
- Wallguard 361
- Wallpaper 329, 805
 - grass cloth 329
 - vinyl 329
- Walls and partitions demolition 301
- cast concrete retaining 622
- Walnut floor 321
- Wardrobe 369
 - cabinet 369
 - wood 410
- Warehouse 432
 - scale 373
- Warm air heater 520
- Wash bowl residential 484
 - brick 91
 - fountain 488
 - fountain group 488
 - safety equipment eye/face 491
- Washable air filter permanent 515
- air filters 515
- Washer 168
 - & dryer coin-operated 383
 - and extractor 383
 - commercial 383
 - darkroom 384
 - pressure 673
 - residential 385
- Washing machine automatic 385
- Waste cleanup hazardous 39
 - compactor 403
 - disposal 403
 - disposal hazardous 39
 - handling 402
 - handling equipment 402
 - incinerator 402
 - packaging 43
 - receptacle 363
- Wastewater treatment system 664
- Watchdog 24
- Watchman service 24
- Water atomizer 40
- balancing 498
- blasting 90
- blasting metal 116
- cement ratio 15
- chiller 523
- chiller centrifugal type 523
- chiller indirect-fired 523
- chiller scroll 523
- chillers absorption 523
- chillers screw 524
- closet 484, 487
- closet chemical 664
- closet removal 463
- closet support 490, 491
- coil chilled 527
- cooler 492, 810
- cooler electric 492
- cooler handicap 492
- cooler support 491
- copper tubing connector 475
- curing concrete 79
- dispenser hot 482
- distiller 399
- distribution pipe 633, 634
- effect testing 15
- fountain removal 463
- hammer arrester 477
- heater 386, 549
- heater commercial 482, 483
- heater gas 483
- heater gas residential 483
- heater oil 483
- heater removal 463
- heater residential 386, 483
- heater residential electric 482
- heating hot 517, 528
- hose 673
- hydrant 477
- pipe 633
- pipe ground clamp 540
- pressure reducing valve 465
- pressure relief valve 465
- pressure valve 465
- pump 386, 504, 637, 673
- pump fire 459
- pump fountain 493
- pumping 586
- reducer concrete 75
- repellent 343
- repellent coating 212
- repellent silicone 212
- softener 482
- softener potable 482
- softener removal 463
- storage solar tank 521
- storage tank aboveground 636
- supply domestic meter 475
- supply ductile iron pipe 633
- supply meter 475
- supply PVC pipe 634
- supply well pump 637
- tank 636, 675
- tank elevated 636
- tempering valve 465
- trailer 674
- treatment 664
- well 637
- Waterless urinal 487
- Waterproofing 211
 - butyl 211
 - cementitious 211
 - coating 210
 - demolition 210
 - elastomeric 211
 - elastomeric sheet 211
 - integral 52
- masonry 93
- membrane 210
- neoprene 211
- rubber 211
- Watersaving urinal 487
- Water-source heat pumps 527
- Waterstop center bulb 64
- dumbbell 64
- fitting 64
- PVC 64
- ribbed 64
- rubber 64
- Water-water exchange hot 522
- Watt meter 550
- Wearing course 612
- Weather barrier or wrap 217
- station 443
- Weatherproof receptacle 547
- Weatherstrip 262
 - aluminum 289
 - door 290
 - window 291
- Weatherstripping 290
- Web stiffeners framing 147
- Wedge anchor 122
- Weight exercise 396
- lifting multi station 396
- Weld joint pipe 471
 - rod 125
 - rod aluminum 126
 - rod cast-iron 126
 - rod stainless 126
 - rod steel 125
- Welded frame 248
- shear connector 125
- structural steel 792
- stud 125
- wire fabric 70, 780
- Welder arc 394
- Welding certification 16
 - fillet 117
 - machine 675
 - structural 117, 132
- Well area window 371
 - casing steel 637
 - gravel pack 637
 - pump 637
 - pump shallow 637
 - water 637
- Wellpoint equipment rental 677
 - header pipe 677
 - pump 677
 - riser pipe 677
- Wellpoints 587, 818
- Wells 586
 - & accessories 637
- Wet/dry vacuum 675
- Wheel color 562
 - guard 361
 - potter's 394
 - stop railroad 648
 - trencher 671
- Wheelbarrow 675
- Wheelchair lift 451
- stairlift 451
- Wheeled loader 670
- Whirler playground 398
- Whirlpool bath 400, 428
- Wide flange beam fiberglass 203
 - throw hinge 287
- Widener pavement 675
- Winch truck 674
- Window 271
 - & door demolition 246
 - aluminum 271
 - aluminum residential storm 277
- and door molding 194
- awning 273, 370
- bank 381
- blind 406
- bow & bay metal-clad 275
- bullet resistant 381
- casement 272, 273, 275
- casement wood 273
- counter 368
- demolition 246
- double hung 272, 273, 275
- double hung vinyl 278
- drive-up 381
- estimates 801
- fiberglass 280
- fiberglass single hung 280
- frame 274
- framing 437
- glass 294
- grille 277
- guard 158
- hardware 281
- industrial 272
- metal 271, 438
- metal-clad awning 274
- muntin 277
- painting 339
- palladian 276
- picture 273
- picture & sliding metal-clad 275
- pivoted 272
- plastic 277
- precast concrete sill 83
- projected 272
- protection film 295
- removal 246
- restoration 44
- sash wood 274
- screen 272, 277
- sill 110
- sill marble 109
- sill tile 316
- single hung vinyl 277
- sliding 274
- sliding wood 274
- steel 272, 438
- steel sash picture 272
- stool 109, 110
- storm 277
- teller 381
- trim set 195
- vinyl 277-280
- vinyl casement 279
- vinyl clad premium 276
- vinyl-clad awning 276
- wall 268
- wall aluminum 268
- wall framing 267
- weatherstrip 291
- well area 371
- wood 273
- wood awning 273
- wood bow 275
- Windows transom 276
- Wine cellar 388
- Winter concrete 75
 - protection 22, 52
- Wire 814
 - brushing metal 116
 - connector 537
 - copper 538, 539
 - electrical 538
 - fabric welded 70
 - fence 23, 621
 - fencing 621
 - glass 294

- ground 540
- hanging 318
- mesh 309, 621
- mesh locker 367
- mesh partition 358
- partition 358
- razor 621
- reinforcement 780
- rope clip 133
- rope socket 133
- rope thimble 133
- rope turnbuckle 134
- strainer 236
- thermostat 550
- THW 538
- THWN-THHN 539
- tying 62
- Wiremold raceway 556
- Wireway 542
- Wiring air conditioner
 - device 541, 556
 - device & box 542
 - fan 549
 - methods 551
 - power 557
 - residential 545, 549
- Wood & composite i-joists 187
- awning window 273
- ballistic door 263
- base 191
- beam 177, 185
- bench 421
- blind 407
- block floor 320
- block floor demolition 301
- blocking 176, 179
- bow window 275
- bracing 176
- bridge 624
- cabinet school 411
- canopy 182
- case good 416
- casework frame 409
- chips 626
- column 177, 185, 200
- composition floor 321
- cupola 371
- cutting 34
- deck 185
- demolition 300
- dome 438
- door 251, 252, 254
- door frame exterior 200
- door frame interior 201
- door residential 255
- double acting swing door 267
- drawer 410
- drawer front 410
- electrical utility poles 644
- fascia 181, 194
- fastener 167
- fiber formboard 59
- fiber insulation 214
- fiber plank cementitious 83
- fiber sheathing 187
- fiber underlayment 186
- firestop 178
- flagpole 372
- floor 320, 321
- floor demolition 301
- folding partition 360
- frame 409
- framing 176, 178, 183
- framing demolition 162
- framing miscellaneous 178
- framing plate 185
- furring 183
- girder 177
- gutter 237
- handrail 194, 199
- header 183
- interior shutter 407
- joist 178, 187
- laminated 188
- ledger 182
- louver 199
- nailer 178
- overhead door 265
- panel door 255
- paneling 195
- parking bumpers 617
- parquet 321
- partition 179
- piers floating 654
- piles 604
- plank scaffold 19, 21
- planter 421
- plate 183
- pole 644
- rafter 181
- rail fence 621
- railing 199
- roof deck 185
- roof truss 188
- sash 274
- screen 277
- screw 167
- security driveway gate 264
- shade 408
- shake 219
- sheathing 187
- sheet piling 819
- sheeting 586, 600, 819
- shelving 369
- shingle 219
- shutter 201
- sidewalk 610
- siding 225
- siding demolition 210
- sill 182
- sleeper 182
- soffit 195
- soffit framing 182
- stair 197
- stair baluster 197
- stair newel 197
- stair parts 197
- stair railing 198
- stair riser 198
- stair stringer 179
- stair tread 198
- storm door 258
- stud 183, 302
- subfloor 186
- threshold 195
- trim 194
- venerer wallpaper 329
- wardrobe 410
- window 273
- window casement 273
- window demolition 246
- window sash 274
- window sliding 274
- Woodburning stove 365
- Wool carpet 328
- fiberglass 214
- Work extra 13
- Worker protection 40
- Workers compensation 12, 767-769
- Woven wire partition 358
- Wrapping pipe 632
- Wrecking ball 675
- Wrench impact 672
- Wrestling mat 397

X

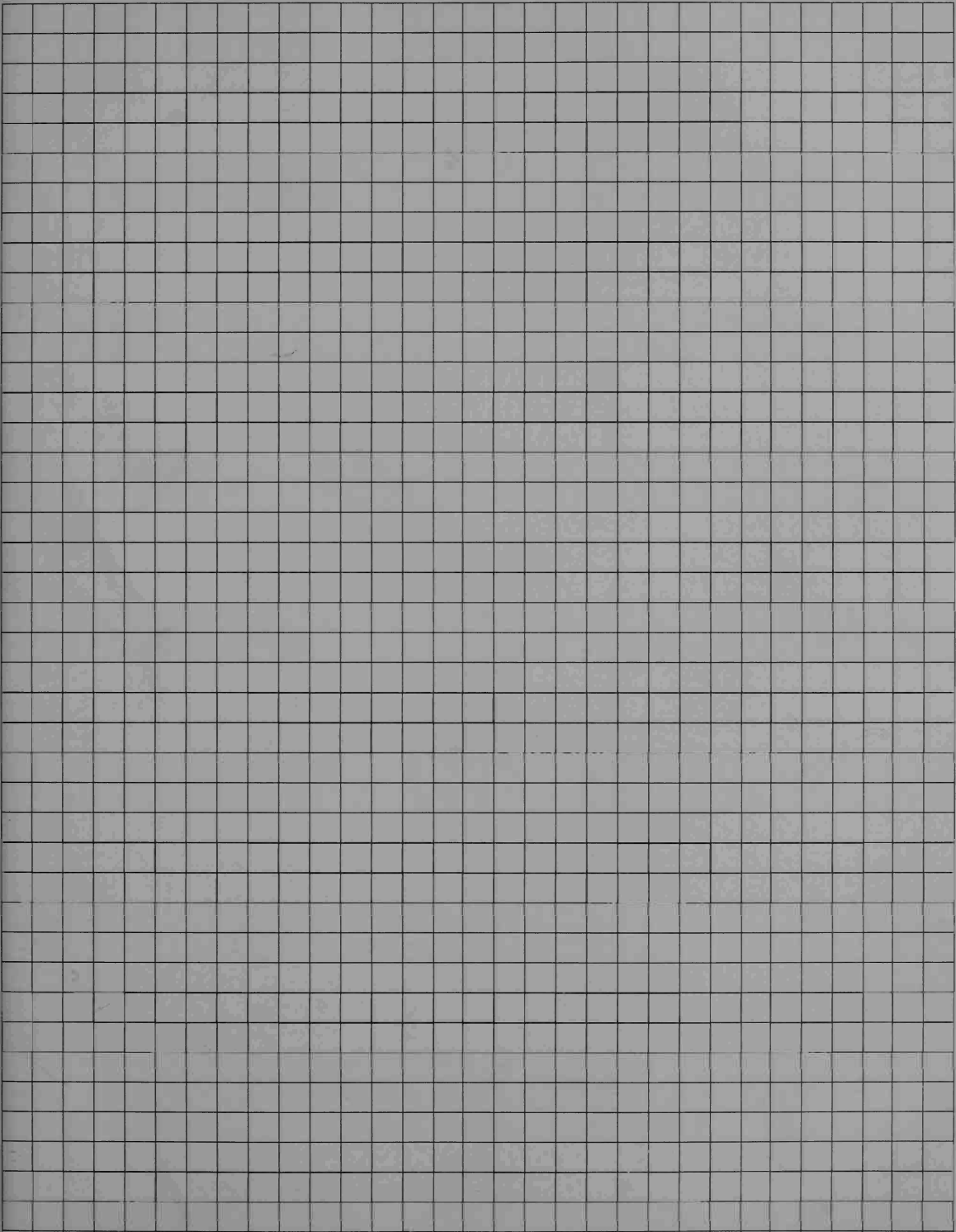
- X-ray barrier 442
- concrete slabs 16
- dental 401
- equipment 402, 570
- machine 570
- medical 402
- mobile 402
- protection 442
- support 126
- X-ray radio freq prot. demo 427

Y

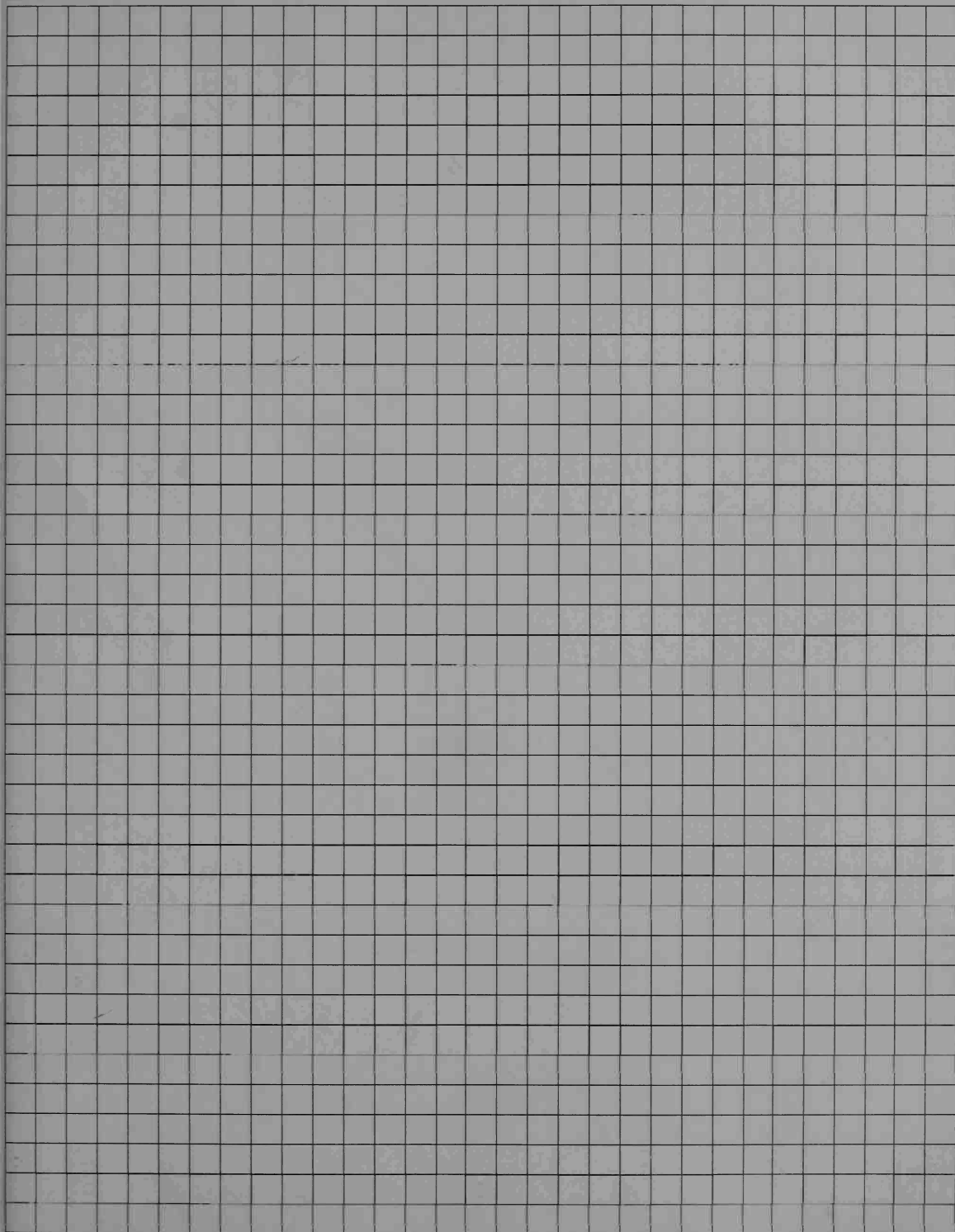
- Y sediment strainer valve 466
- type bronze body strainer 503
- type iron body strainer 503
- Yellow pine floor 321

Z

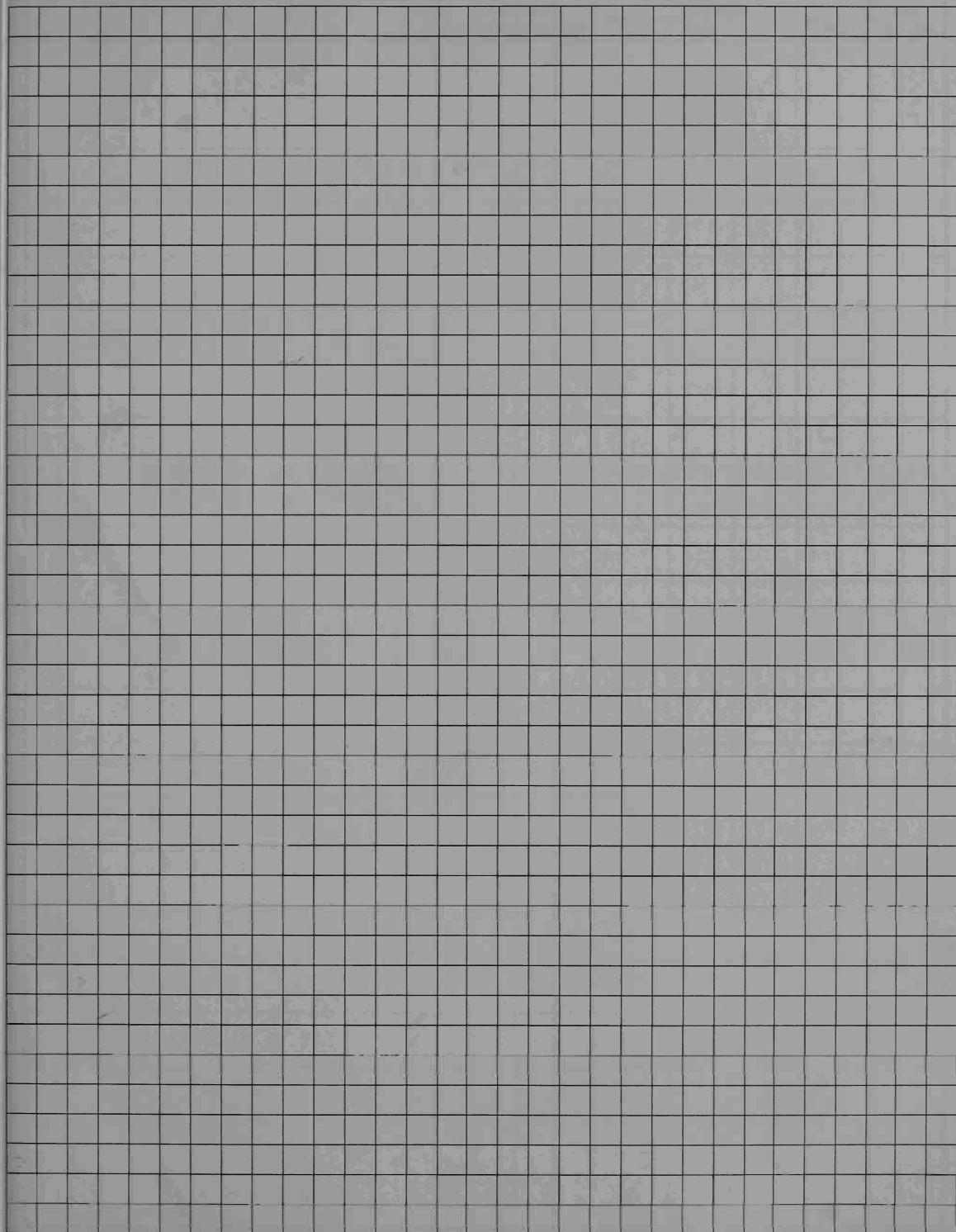
- Z bar suspension 318
- Zee bar 314
- Zinc divider strip 324
- plating 167
- roof 232
- terrazzo strip 324
- weatherstrip 290













Division Notes

[illegible]

Division Notes

[illegible]

Division Notes

[illegible]

Division Notes

[illegible]

Division Notes

		CREW	DAILY OUTPUT	LABOR- HOURS	UNIT	2012 BARE COSTS				TOTAL INCL O&P
						MAT.	LABOR	EQUIP.	TOTAL	
I										

Reed Construction Data/RSMeans— a tradition of excellence in construction cost information and services since 1942

Table of Contents

Annual Cost Guides
Seminars
Reference Books
New Titles
Order Form

For more information visit the RSMeans website at www.rsmeans.com

Unit prices according to the latest MasterFormat

Book Selection Guide The following table provides definitive information on the content of each cost data publication. The number of lines of data provided in each unit price or assemblies division, as well as the number of reference tables and crews, is listed for each book. The presence of other elements such as equipment rental costs, historical cost indexes, city cost indexes, square foot models, or cross-referenced indexes is also indicated. You can use the table to help select the RSMeans book that has the quantity and type of information you most need in your work.

Unit Cost Divisions	Building Construction	Mechanical	Electrical	Commercial Renovation	Square Foot	Site Work Landsc.	Green Building	Interior	Concrete Masonry	Open Shop	Heavy Construction	Light Commercial	Facilities Construction	Plumbing	Residential
1	571	392	407	495		515	124	319	461	570	505	231	1001	408	174
2	745	264	83	684		965	180	363	219	742	704	439	1174	288	240
3	1539	222	212	906		1342	874	313	1847	1539	1481	386	1567	189	366
4	902	24	0	698		701	183	573	1137	878	593	490	1149	0	405
5	1912	263	168	1022		871	1799	1021	834	1903	1118	893	1905	339	724
6	1986	67	69	1573		401	534	1294	300	1965	380	1667	1602	22	2179
7	1456	208	125	1484		555	778	543	505	1453	26	1161	1516	217	915
8	2081	61	10	2277		296	1155	1765	658	2036	0	1661	2495	0	1412
9	1875	72	26	1670		306	444	1966	386	1817	15	1589	2111	54	1400
10	988	17	10	612		215	27	808	159	988	29	494	1074	231	221
11	1029	208	166	493		126	54	885	28	1014	0	235	1049	169	110
12	562	0	2	318		248	150	1707	12	551	19	364	1757	23	317
13	732	117	111	247		347	128	249	69	731	261	80	760	72	79
14	280	36	0	229		28	0	259	0	279	0	12	299	21	6
21	78	0	16	30		0	0	249	0	78	0	60	430	436	224
22	1144	7289	155	1108		1536	1100	609	20	1106	1660	834	7150	9008	662
23	1201	7048	605	784		157	900	691	38	1121	110	688	5126	1870	411
26	1249	496	9967	1010		763	572	1085	55	1237	539	1095	9903	441	559
27	67	0	261	34		9	0	59	0	67	35	48	263	0	4
28	96	58	124	71		0	21	78	0	99	0	40	139	44	25
31	1477	735	608	798		3186	290	7	1208	1421	3257	600	1540	660	606
32	767	54	0	838		4324	343	359	274	738	1797	380	1645	166	428
33	506	1008	465	205		1964	41	0	228	505	1887	117	1549	1197	115
34	109	0	20	4		144	0	0	31	64	122	0	129	0	0
35	18	0	0	0		166	0	0	0	18	281	0	83	0	0
41	52	0	0	24		7	0	22	0	52	30	0	59	14	0
44	75	83	0	0		0	0	0	0	0	0	0	75	75	0
46	23	16	0	0		162	149	0	0	23	152	0	33	33	0
48	0	0	0	0		0	19	0	0	0	0	0	0	0	0
Totals	23520	18738	13610	17614		19334	9865	15224	8469	22995	15001	13564	47583	15977	11582

Assem Div	Building Construction	Mechanical	Electrical	Commercial Renovation	Square Foot	Site Work Landsc.	Assemblies	Green Building	Interior	Concrete Masonry	Heavy Construction	Light Commercial	Facilities Construction	Plumbing	Asm Div	Residential
A		15	0	188	150	577	598	0	0	536	571	154	24	0	1	368
B		0	0	825	2472	0	5572	56	330	1914	368	2032	143	0	2	211
C		0	0	647	864	0	1233	0	1558	146	0	763	245	0	3	588
D		1067	812	712	1798	72	2425	281	769	0	0	1272	1027	1083	4	859
E		0	0	86	259	0	297	0	5	0	0	256	5	0	5	392
F		0	0	0	122	0	122	0	0	0	0	122	3	0	6	357
G		527	294	317	202	3006	668	0	0	535	1372	200	293	685	7	300
															8	760
															9	80
															10	0
															11	0
															12	0
Totals		1609	1106	2775	5867	3655	10915	337	2662	3131	2311	4799	1740	1768		3915

Reference Section	Building Construction Costs	Mechanical	Electrical	Commercial Renovation	Square Foot	Site Work Landscape	Assem.	Green Building	Interior	Concrete Masonry	Open Shop	Heavy Construction	Light Commercial	Facilities Construction	Plumbing	Resi.
Reference Tables	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Models					107								46			28
Crews	527	527	527	505		527		527	527	527	503	527	503	505	527	503
Equipment Rental Costs	yes	yes	yes	yes		yes		yes	yes	yes	yes	yes	yes	yes	yes	yes
Historical Cost Indexes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no
City Cost Indexes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Annual Cost Guides

Cost Guides also available online
at meanscostworks.com

For more information visit the RSMeans website at www.rsmeans.com

Unit prices according to the latest MasterFormat

RSMeans Building Construction Cost Data 2012

RSMeans
Building
Construction
Cost Data

2012

Offers you unchallenged unit price reliability in an easy-to-use format. Whether used for verifying complete, finished estimates or for periodic checks, it supplies more cost facts better and faster than any comparable source. Over 23,000 unit prices have been updated for 2012. The City Cost Indexes and Location Factors cover over 930 areas, for indexing to any project location in North America. Order and get *RSMeans Quarterly Update Service* FREE. You'll have year-long access to the RSMeans Estimating **HOTLINE** FREE with your

subscription. Expert assistance when using RSMeans data is just a phone call away.

\$177.95 per copy | Available Sept. 2011 | Catalog no. 60012

RSMeans Mechanical Cost Data 2012

RSMeans
Mechanical
Cost Data

2012

Total unit and systems price guidance for mechanical construction... materials, parts, fittings, and complete labor cost information. Includes prices for piping, heating, air conditioning, ventilation, and all related construction.

Plus new 2012 unit costs for:

- Thousands of installed HVAC/controls assemblies components
- "On-site" Location Factors for over 930 cities and towns in the U.S. and Canada
- Crews, labor, and equipment

\$174.95 per copy | Available Oct. 2011 | Catalog no. 60022

RSMeans Square Foot Costs 2012

RSMeans
Square Foot
Costs

2012

Accurate and Easy To Use

- Updated price information based on nationwide figures from suppliers, estimators, labor experts, and contractors
- "How-to-Use" sections, with clear examples of commercial, residential, industrial, and institutional structures
- Realistic graphics, offering true-to-life illustrations of building projects
- Extensive information on using square foot cost data, including sample estimates and alternate pricing methods

\$187.95 per copy | Available Oct. 2011 | Catalog no. 60052

RSMeans Green Building Cost Data 2012

RSMeans
Green
Building
Cost Data

2012

Estimate, plan, and budget the costs of green building for both new commercial construction and renovation work with this first edition of RSMeans Green Building Cost Data. More than 9,000 unit costs for a wide array of green building products plus assemblies costs. Easily identified cross references to LEED and Green Globes building rating systems criteria.

\$147.95 per copy | Available Nov. 2011 | Catalog no. 60552

RSMeans Facilities Construction Cost Data 2012

RSMeans
Facilities
Construction
Cost Data

2012

For the maintenance and construction of commercial, industrial, municipal, and institutional properties. Costs are shown for new and remodeling construction and are broken down into materials, labor, equipment, and overhead and profit. Special emphasis is given to sections on mechanical, electrical, furnishings, site work, building maintenance, finish work, and demolition.

More than 47,000 unit costs, plus assemblies costs and a comprehensive Reference Section are included.

\$453.95 per copy | Available Nov. 2011 | Catalog no. 60202

RSMeans Commercial Renovation Cost Data 2012

RSMeans
Commercial
Renovation
Cost Data

2012

Commercial/Multifamily Residential

Use this valuable tool to estimate commercial and multifamily residential renovation and remodeling.

Includes: New costs for hundreds of unique methods, materials, and conditions that only come up in repair and remodeling, PLUS:

- Unit costs for more than 17,000 construction components
- Installed costs for more than 2,000 assemblies
- More than 930 "on-site" localization factors for the U.S. and Canada

\$144.95 per copy | Available Oct. 2011 | Catalog no. 60042

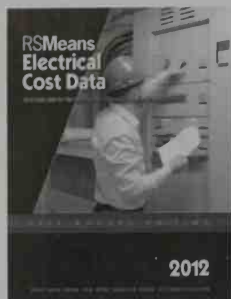
Annual Cost Guides

Cost Guides also available online
at meanscostworks.com

For more information visit the RSMeans website at www.rsmeans.com

Unit prices according to the latest MasterFormat

RSMeans Electrical Cost Data 2012



Pricing information for every part of electrical cost planning. More than 13,000 unit and systems costs with design tables; clear specifications and drawings; engineering guides; illustrated estimating procedures; complete labor-hour and materials costs for better scheduling and procurement; and the latest electrical products and construction methods.

- A variety of special electrical systems including cathodic protection
- Costs for maintenance, demolition, HVAC/mechanical, specialties, equipment, and more

\$179.95 per copy | Available Oct. 2011 | Catalog no. 60032

RSMeans Assemblies Cost Data 2012



RSMeans Assemblies Cost Data takes the guesswork out of preliminary or conceptual estimates. Now you don't have to try to calculate the assembled cost by working up individual component costs. We've done all the work for you.

Presents detailed illustrations, descriptions, specifications, and costs for every conceivable building assembly—over 350 types in all—arranged in the easy-to-use UNIFORMAT II system. Each illustrated “assembled” cost includes

a complete grouping of materials and associated installation costs, including the installing contractor's overhead and profit.

\$290.95 per copy | Available Sept. 2011 | Catalog no. 60062

RSMeans Residential Cost Data 2012



Contains square foot costs for 28 basic home models with the look of today, plus hundreds of custom additions and modifications you can quote right off the page. Includes costs for more than 700 residential systems. Complete with blank estimating forms, sample estimates, and step-by-step instructions.

Now contains line items for cultured stone and brick, PVC trim lumber, and TPO roofing.

\$127.95 per copy | Available Oct. 2011 | Catalog no. 60172

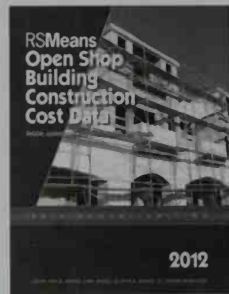
RSMeans Electrical Change Order Cost Data 2012



RSMeans Electrical Change Order Cost Data provides you with electrical unit prices exclusively for pricing change orders—based on the recent, direct experience of contractors and suppliers. Analyze and check your own change order estimates against the experience others have had doing the same work. It also covers productivity analysis and change order cost justifications. With useful information for calculating the effects of change orders and dealing with their administration.

\$174.95 per copy | Available Dec. 2011 | Catalog no. 60232

RSMeans Open Shop Building Construction Cost Data 2012



The latest costs for accurate budgeting and estimating of new commercial and residential construction. . . renovation work. . . change orders. . . cost engineering.

RSMeans Open Shop “BCCD” will assist you to:

- Develop benchmark prices for change orders
- Plug gaps in preliminary estimates and budgets
- Estimate complex projects
- Substantiate invoices on contracts
- Price ADA-related renovations

\$152.95 per copy | Available Dec. 2011 | Catalog no. 60152

RSMeans Site Work & Landscape Cost Data 2012



Includes unit and assemblies costs for earthwork, sewerage, piped utilities, site improvements, drainage, paving, trees and shrubs, street openings/repairs, underground tanks, and more. Contains 78 types of assemblies costs for accurate conceptual estimates.

Includes:

- Estimating for infrastructure improvements
- Environmentally-oriented construction
- ADA-mandated handicapped access
- Hazardous waste line items

\$172.95 per copy | Available Dec. 2011 | Catalog no. 60282

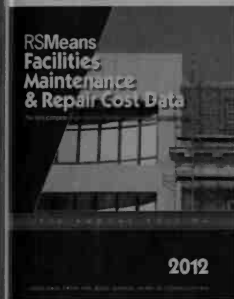
Annual Cost Guides

Cost Guides also available online
at meanscostworks.com

For more information visit the RSMeans website at www.rsmeans.com

Unit prices according to the latest MasterFormat

RSMeans Facilities Maintenance & Repair Cost Data 2012

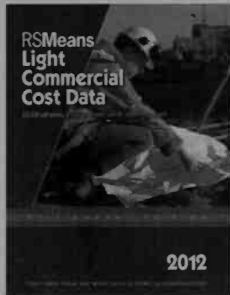


RSMeans Facilities Maintenance & Repair Cost Data gives you a complete system to manage and plan your facility repair and maintenance costs and budget efficiently. Guidelines for auditing a facility and developing an annual maintenance plan. Budgeting is included, along with reference tables on cost and management, and information on frequency and productivity of maintenance operations.

The only nationally recognized source of maintenance and repair costs. Developed in cooperation with the Civil Engineering Research Laboratory (CERL) of the Army Corps of Engineers.

\$399.95 per copy | Available Nov. 2011 | Catalog no. 60302

RSMeans Light Commercial Cost Data 2012



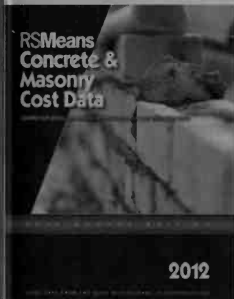
Specifically addresses the light commercial market, which is a specialized niche in the construction industry. Aids you, the owner/designer/contractor, in preparing all types of estimates—from budgets to detailed bids. Includes new advances in methods and materials.

Assemblies Section allows you to evaluate alternatives in the early stages of design/planning.

Over 13,000 unit costs ensure that you have the prices you need. . . when you need them.

\$132.95 per copy | Available Nov. 2011 | Catalog no. 60182

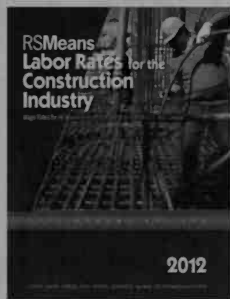
RSMeans Concrete & Masonry Cost Data 2012



Provides you with cost facts for virtually all concrete/masonry estimating needs, from complicated formwork to various sizes and face finishes of brick and block—all in great detail. The comprehensive Unit Price Section contains more than 8,000 selected entries. Also contains an Assemblies [Cost] Section, and a detailed Reference Section that supplements the cost data.

\$162.95 per copy | Available Dec. 2011 | Catalog no. 60112

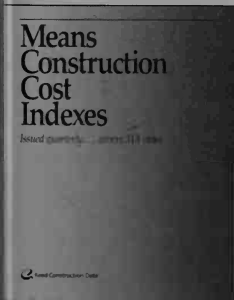
RSMeans Labor Rates for the Construction Industry 2012



Complete information for estimating labor costs, making comparisons, and negotiating wage rates by trade for more than 300 U.S. and Canadian cities. With 46 construction trades listed by local union number in each city, and historical wage rates included for comparison. Each city chart lists the county and is alphabetically arranged with handy visual flip tabs for quick reference.

\$395.95 per copy | Available Dec. 2011 | Catalog no. 60122

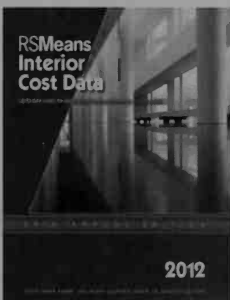
RSMeans Construction Cost Indexes 2012



What materials and labor costs will change unexpectedly this year? By how much?

- Breakdowns for 318 major cities
- National averages for 30 key cities
- Expanded five major city indexes
- Historical construction cost indexes

RSMeans Interior Cost Data 2012



Provides you with prices and guidance needed to make accurate interior work estimates. Contains costs on materials, equipment, hardware, custom installations, furnishings, and labor costs. . . for new and remodel commercial and industrial interior construction, including updated information on office furnishings, and reference information.

\$362.00 per year (subscription) | Catalog no. 50142
\$90.50 individual quarters | Catalog no. 60142 A,B,C,D

\$182.95 per copy | Available Nov. 2011 | Catalog no. 60092

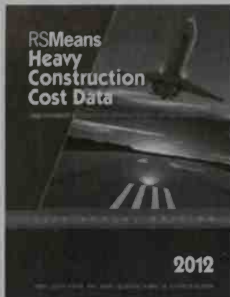
Annual Cost Guides

Cost Guides also available online
at meanscostworks.com

For more information visit the RSMeans website at www.rsmeans.com

Unit prices according to the latest MasterFormat

RSMeans Heavy Construction Cost Data 2012



A comprehensive guide to heavy construction costs. Includes costs for highly specialized projects such as tunnels, dams, highways, airports, and waterways. Information on labor rates, equipment, and materials costs is included. Features unit price costs, systems costs, and numerous reference tables for costs and design.

RSMeans Plumbing Cost Data 2012



Comprehensive unit prices and assemblies for plumbing, irrigation systems, commercial and residential fire protection, point-of-use water heaters, and the latest approved materials. This publication and its companion, *RSMeans Mechanical Cost Data*, provide full-range cost estimating coverage for all the mechanical trades.

Now contains updated costs for potable water and radiant heat systems and high efficiency fixtures.

\$177.95 per copy | Available Dec. 2011 | Catalog no. 60162

\$179.95 per copy | Available Oct. 2011 | Catalog no. 60212

2012 RSMeans Seminar Schedule

Note: call for exact dates and details.

Location

Las Vegas, NV
Washington, DC
San Francisco, CA
Washington, DC
Dallas, TX

Dates

March
April
June
September
September

Location

Las Vegas, NV
Orlando, FL
San Diego, CA

Dates

October
November
December

1-800-334-3509, ext. 925115

2012 Regional Seminar Schedule

Note: call for exact dates and details.

Location

Seattle, WA
Dallas/Ft. Worth, TX
Austin, TX
Oklahoma City, OK
Anchorage, AK
Phoenix, AZ
San Bernardino, CA
Aiea, HI
Kansas City, MO
Toronto
Denver, CO
Bethesda, MD

Dates

January and August
January
February
February
March and September
March
April
April
April
May
May
June

Location

Columbus, GA
El Segundo, CA
Jacksonville FL
Birmingham, AL
St. Louis, MO
Houston, TX
Portland, OR
Baltimore, MD
San Antonio, TX
Raleigh, NC

Dates

June
August
September
October
October
October
November
November
December
December

1-800-334-3509, ext. 925115

Professional Development

For more information visit the RSMeans website at www.rsmeans.com

Registration Information

Register early... Save up to \$100! Register 30 days before the start date of a seminar and save \$100 off your total fee. *Note: This discount can be applied only once per order. It cannot be applied to team discount registrations or any other special offer.*

How to register Register by phone today! The RSMeans toll-free number for making reservations is 1-800-334-3509, ext. 925115.

Individual seminar registration fee - \$935. Means CostWorks® training registration fee - \$375. To register by mail, complete the registration form and return, with your full fee, to: RSMeans Seminars, 700 Longwater Drive, Norwell, MA 02061.

Government pricing All federal government employees save off the regular seminar price. Other promotional discounts cannot be combined with the government discount.

Team discount program for two to four seminar registrations. Call for pricing: 1-800-334-3509, ext. 925115

Multiple course discounts When signing up for two or more courses, call for pricing.

Refund policy Cancellations will be accepted up to ten business days prior to the seminar start. There are no refunds for cancellations received later than ten working days prior to the first day of the seminar. A \$150 processing fee will be applied for all cancellations. Written notice of cancellation is required. Substitutions can be made at any time before the session starts. **No-shows** are subject to the full seminar fee.

AACE approved courses Many seminars described and offered here have been approved for 14 hours (1.4 recertification credits) of credit by the AACE

International Certification Board toward meeting the continuing education requirements for recertification as a Certified Cost Engineer/Certified Cost Consultant.

AIA Continuing Education We are registered with the AIA Continuing Education System (AIA/CES) and are committed to developing quality learning activities in accordance with the CES criteria. Many seminars meet the AIA/CES criteria for Quality Level 2. AIA members may receive (14) learning units (LUs) for each two-day RSMeans course.

Daily course schedule The first day of each seminar session begins at 8:30 a.m. and ends at 4:30 p.m. The second day begins at 8:00 a.m. and ends at 4:00 p.m. Participants are urged to bring a hand-held calculator, since many actual problems will be worked out in each session.

Continental breakfast Your registration includes the cost of a continental breakfast, and a morning and afternoon refreshment break. These informal segments allow you to discuss topics of mutual interest with other seminar attendees. (You are free to make your own lunch and dinner arrangements.)

Hotel/transportation arrangements RSMeans arranges to hold a block of rooms at most host hotels. To take advantage of special group rates when making your reservation, be sure to mention that you are attending the RSMeans seminar. You are, of course, free to stay at the lodging place of your choice. **(Hotel reservations and transportation arrangements should be made directly by seminar attendees.)**

Important Class sizes are limited, so please register as soon as possible.

Note: Pricing subject to change.

Registration Form

ADDS-1000

Call 1-800-334-3509, ext. 925115 to register or FAX this form 1-800-632-6732. Visit our website: www.rsmeans.com

Please register the following people for the RSMeans construction seminars as shown here. We understand that we must make our own hotel reservations if overnight stays are necessary.

☐ Full payment of \$_____ enclosed.

☐ Bill me.

Please print name of registrant(s).

(To appear on certificate of completion)

Firm name_____

Address_____

City/State/Zip_____

Telephone no._____ Fax no._____

E-mail address_____

Charge registration(s) to: ☐ MasterCard ☐ VISA ☐ American Express

Account no._____ Exp. date_____

Cardholder's signature_____

Seminar name_____

Seminar City_____

P.O. #: _____
GOVERNMENT AGENCIES MUST SUPPLY PURCHASE ORDER NUMBER OR
TRAINING FORM.

Please mail check to: RSMeans Seminars, 700 Longwater Drive, Norwell, MA 02061 USA

Professional Development

For more information visit the RSMeans website at www.rsmeans.com

Means CostWorks.com Training

Construction estimating is vital to the decision-making process at each state of every project. Means CostWorks.com works the way you do. It's systematic, flexible and intuitive. In this one day class you will see how you can estimate any phase of any project faster and better.

Some of what you'll learn:

- Customizing Means CostWorks.com
- Making the most of RSMeans "Circle Reference" numbers
- How to integrate your cost data
- Generate reports, exporting estimates to MS Excel, sharing, collaborating and more

Who should attend: architects & engineers, facility managers, contractors, construction estimators, and anyone using this powerful web-based tool.

Facilities Construction Estimating

In this *two-day* course, professionals working in facilities management can get help with their daily challenges to establish budgets for all phases of a project.

Some of what you'll learn:

- Determining the full scope of a project
- Identifying the scope of risks and opportunities
- Creative solutions to estimating issues
- Organizing estimates for presentation and discussion
- Special techniques for repair/remodel and maintenance projects
- Negotiating project change orders

Who should attend: facility managers, engineers, contractors, facility tradespeople, planners, and project managers.

Scheduling with Microsoft Project

Two days of hands-on training gives you a look at the basics to putting it all together with MS Project to create a complete project schedule. Learn to work better and faster, manage changes and updates, enhance tracking, generate actionable reports, and boost control of your time and budget.

Some of what you'll learn:

- Defining task/activity relationships: link tasks, establish predecessor/successor relationships and create logs
- Baseline scheduling: the essential what/when
- Using MS Project to determine the critical path
- Integrate RSMeans data with MS Project
- The dollar-loaded schedule: enhance the reliability of this "must-know" technique for scheduling public projects.

Who should attend: Contractors' project-management teams, architects and engineers, project owners and their representatives, and those interested in improving their project planning and scheduling and management skills.

Site Work & Heavy Construction Estimating

This *two-day* course teaches attendees how to estimate earthwork, site utilities, foundations, and site improvements, using the assemblies and the unit price methods.

Some of what you'll learn:

- Basic site work and heavy construction estimating skills
- Estimating foundations, utilities, earthwork, and site improvements
- Correct equipment usage, quality control, and site investigation for estimating purposes

Who should attend: project managers, design engineers, estimators, and contractors doing site work and heavy construction.

Practical Project Management for Construction Professionals

In this *two-day* course, acquire the essential knowledge and develop the skills to effectively and efficiently execute the day-to-day responsibilities of the construction project manager.

Covers:

- General conditions of the construction contract
- Contract modifications: change orders and construction change directives
- Negotiations with subcontractors and vendors
- Effective writing: notification and communications
- Dispute resolution: claims and liens

Who should attend: architects, engineers, owner's representatives, project managers.

Mechanical & Electrical Estimating

This *two-day* course teaches attendees how to prepare more accurate and complete mechanical/electrical estimates, avoiding the pitfalls of omission and double-counting, while understanding the composition and rationale within the RSMeans mechanical/electrical database.

Some of what you'll learn:

- The unique way mechanical and electrical systems are interrelated
- M&E estimates—conceptual, planning, budgeting, and bidding stages
- Order of magnitude, square foot, assemblies, and unit price estimating
- Comparative cost analysis of equipment and design alternatives

Who should attend: architects, engineers, facilities managers, mechanical and electrical contractors, and others who need a highly reliable method for developing, understanding, and evaluating mechanical and electrical contracts.

Professional Development

For more information visit the RSMeans website at www.rsmeans.com

Unit Price Estimating

This interactive *two-day* seminar teaches attendees how to interpret project information and process it into final, detailed estimates with the greatest accuracy level.

The most important credential an estimator can take to the job is the ability to visualize construction and estimate accurately.

Some of what you'll learn:

- Interpreting the design in terms of cost
- The most detailed, time-tested methodology for accurate pricing
- Key cost drivers—material, labor, equipment, staging, and subcontracts
- Understanding direct and indirect costs for accurate job cost accounting and change order management

Who should attend: Corporate and government estimators and purchasers, architects, engineers, and others who need to produce accurate project estimates.

RSMeans CostWorks® CD Training

This one-day course helps users become more familiar with the functionality of *RSMeans CostWorks* program. Each menu, icon, screen, and function found in the program is explained in depth. Time is devoted to hands-on estimating exercises.

Some of what you'll learn:

- Searching the database using all navigation methods
- Exporting RSMeans data to your preferred spreadsheet format
- Viewing crews, assembly components, and much more
- Automatically regionalizing the database

You are required to bring your own laptop computer for this course.

When you register for this course you will receive an outline for your laptop requirements.

Also offering web training for CostWorks CD!

Facilities Maintenance & Repair Estimating

This *two-day* course teaches attendees how to plan, budget, and estimate the cost of ongoing and preventive maintenance and repair for existing buildings and grounds.

Some of what you'll learn:

- The most financially favorable maintenance, repair, and replacement scheduling and estimating
- Auditing and value engineering facilities
- Preventive planning and facilities upgrading
- Determining both in-house and contract-out service costs
- Annual, asset-protecting M&R plan

Who should attend: Facility managers, maintenance supervisors, buildings and grounds superintendents, plant managers, planners, estimators, and others involved in facilities planning and budgeting.

Square Foot Estimating using Means CostWorks

This *two day* class uses the leading industry data and a powerful software package to develop highly accurate conceptual estimates for your construction projects. All attendees must bring a laptop computer loaded with the current year *Square Foot Model Costs* and the *Assemblies Cost Data CostWorks* titles.

Some of what you'll learn:

- Introduction to conceptual estimating
- Types of conceptual estimates
- Helpful hints
- Order of magnitude estimating
- Square foot estimating
- Assemblies estimating

Who should attend: architects, engineers, contractors, construction estimators, owner's representatives, and anyone looking for an electronic method for performing square foot estimating.

Assessing Scope of Work for Facility Construction Estimating

This *two-day* practical training program addresses the vital importance of understanding the SCOPE of projects in order to produce accurate cost estimates for facility repair and remodeling.

Some of what you'll learn:

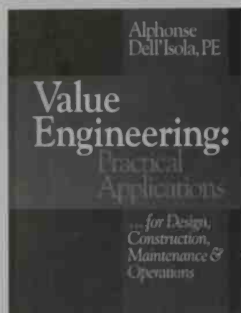
- Discussions of site visits, plans/specs, record drawings of facilities, and site-specific lists
- Review of CSI divisions, including means, methods, materials, and the challenges of scoping each topic
- Exercises in SCOPE identification and SCOPE writing for accurate estimating of projects
- Hands-on exercises that require SCOPE, take-off, and pricing

Who should attend: corporate and government estimators, planners, facility managers, and others who need to produce accurate project estimates.

Reference Books

For more information visit the RSMeans website at www.rsmeans.com

Value Engineering: Practical Applications

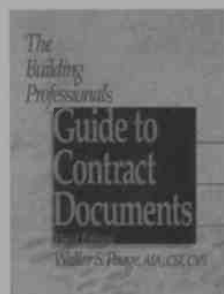


For Design, Construction, Maintenance & Operations
by Alphonse Dell'Isola, PE

A tool for immediate application—for engineers, architects, facility managers, owners, and contractors. Includes making the case for VE—the management briefing; integrating VE into planning, budgeting, and design; conducting life cycle costing; using VE methodology in design review and consultant selection; case studies; VE workbook; and a life cycle costing program on disk.

\$79.95 per copy | Over 450 pages, illustrated, softcover | Catalog no. 67319A

The Building Professional's Guide to Contract Documents



3rd Edition

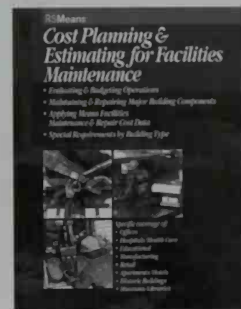
by Waller S. Poage, AIA, CSI, CVS

A comprehensive reference for owners, design professionals, contractors, and students

- Structure your documents for maximum efficiency.
- Effectively communicate construction requirements.
- Understand the roles and responsibilities of construction professionals.
- Improve methods of project delivery.

\$64.95 per copy | 400 pages Diagrams and construction forms, hardcover
Catalog no. 67261A

Cost Planning & Estimating for Facilities Maintenance



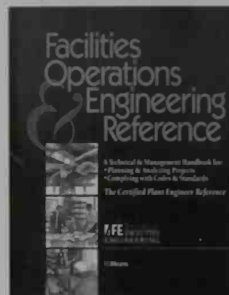
In this unique book, a team of facilities management authorities shares their expertise on:

- Evaluating and budgeting maintenance operations
- Maintaining and repairing key building components
- Applying RSMeans Facilities Maintenance & Repair Cost Data to your estimating

Covers special maintenance requirements of the ten major building types

\$89.95 per copy | Over 475 pages, hardcover | Catalog no. 67314

Facilities Operations & Engineering Reference

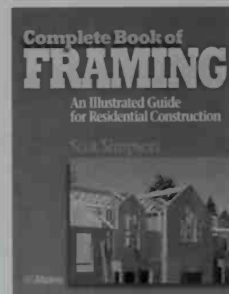


by the Association for Facilities Engineering and RSMeans

An all-in-one technical reference for planning and managing facility projects and solving day-to-day operations problems. Selected as the official certified plant engineer reference, this handbook covers financial analysis, maintenance, HVAC and energy efficiency, and more.

\$109.95 per copy | Over 700 pages, illustrated, hardcover | Catalog no. 67318

Complete Book of Framing



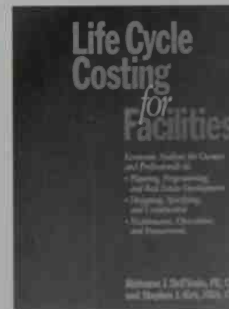
by Scot Simpson

This straightforward, easy-to-learn method will help framers, carpenters, and handy homeowners build their skills in rough carpentry and framing. Shows how to frame all the parts of a house: floors, walls, roofs, door & window openings, and stairs—with hundreds of color photographs and drawings that show every detail.

The book gives beginners all the basics they need to go from zero framing knowledge to a journeyman level.

\$29.95 per copy | 336 pages, softcover | Catalog no. 67353

Life Cycle Costing for Facilities



by Alphonse Dell'Isola and Dr. Steven Kirk

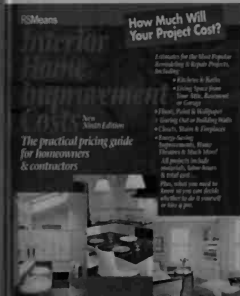
Guidance for achieving higher quality design and construction projects at lower costs! Cost-cutting efforts often sacrifice quality to yield the cheapest product. Life cycle costing enables building designers and owners to achieve both. The authors of this book show how LCC can work for a variety of projects — from roads to HVAC upgrades to different types of buildings.

\$99.95 per copy | 396 pages, hardcover | Catalog no. 67341

Reference Books

For more information visit the RSMeans website at www.rsmeans.com

Interior Home Improvement Costs

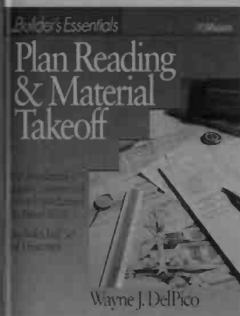


9th Edition

Updated estimates for the most popular remodeling and repair projects—from small, do-it-yourself jobs to major renovations and new construction. Includes: kitchens & baths; new living space from your attic, basement, or garage; new floors, paint, and wallpaper; tearing out or building new walls; closets, stairs, and fireplaces; new energy-saving improvements, home theaters, and more!

\$24.95 per copy | 250 pages, illustrated, softcover | Catalog no. 67308E

Builder's Essentials: Plan Reading & Material Takeoff

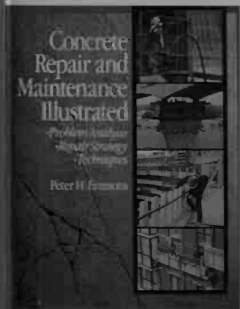


For Residential and Light Commercial Construction by Wayne J. DelPico

A valuable tool for understanding plans and specs, and accurately calculating material quantities. Step-by-step instructions and takeoff procedures based on a full set of working drawings.

\$35.95 per copy | Over 420 pages, softcover | Catalog no. 67307

Concrete Repair and Maintenance Illustrated



by Peter Emmons

Hundreds of illustrations show users how to analyze, repair, clean, and maintain concrete structures for optimal performance and cost effectiveness. From parking garages to roads and bridges to structural concrete, this comprehensive book describes the causes, effects, and remedies for concrete wear and failure. Invaluable for planning jobs, selecting materials, and training employees, this book is a must-have for concrete specialists, general contractors, facility managers, civil and structural engineers, and architects.

\$69.95 per copy | 300 pages, illustrated, softcover | Catalog no. 67146

Exterior Home Improvement Costs

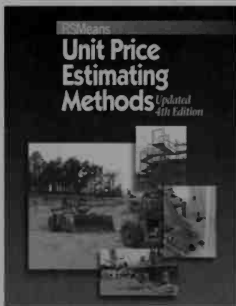


9th Edition

Updated estimates for the most popular remodeling and repair projects—from small, do-it-yourself jobs, to major renovations and new construction. Includes: curb appeal projects—landscaping, patios, porches, driveways, and walkways; new windows and doors; decks, greenhouses, and sunrooms; room additions and garages; roofing, siding, and painting; "green" improvements to save energy & water.

\$24.95 per copy | Over 275 pages, illustrated, softcover | Catalog no. 67309E

Means Unit Price Estimating Methods

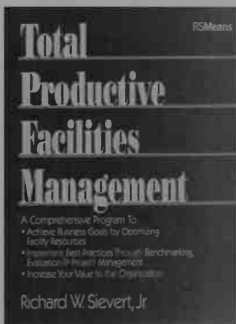


New 4th Edition

This new edition includes up-to-date cost data and estimating examples, updated to reflect changes to the CSI numbering system and new features of RSMeans cost data. It describes the most productive, universally accepted ways to estimate, and uses checklists and forms to illustrate shortcuts and timesavers. A model estimate demonstrates procedures. A new chapter explores computer estimating alternatives.

\$59.95 per copy | Over 350 pages, illustrated, softcover | Catalog no. 67303B

Total Productive Facilities Management



by Richard W. Sievert, Jr.

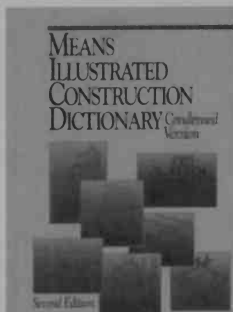
Today, facilities are viewed as strategic resources. . . elevating the facility manager to the role of asset manager supporting the organization's overall business goals. Now, Richard Sievert Jr., in this well-articulated guidebook, sets forth a new operational standard for the facility manager's emerging role. . . a comprehensive program for managing facilities as a true profit center.

\$79.95 per copy | 275 pages, softcover | Catalog no. 67321

Reference Books

For more information visit the RSMeans website at www.rsmeans.com

Means Illustrated Construction Dictionary



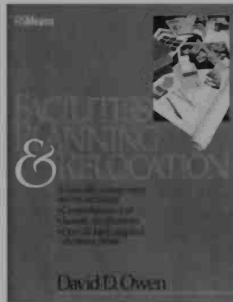
Condensed, 2nd Edition

The best portable dictionary for office or field use—an essential tool for contractors, architects, insurance and real estate personnel, facility managers, homeowners, and anyone who needs quick, clear definitions for construction terms. The second edition has been further enhanced with updates and hundreds of new terms and illustrations . . . in keeping with the most recent developments in the construction industry.

Now with a quick-reference Spanish section. Includes tools and equipment, materials, tasks, and more!

\$59.95 per copy | Over 500 pages, softcover | Catalog no. 67282A

Facilities Planning & Relocation



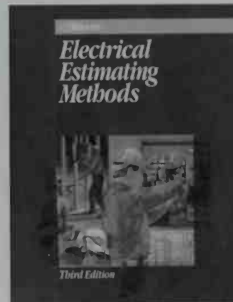
by David D. Owen

A complete system for planning space needs and managing relocations. Includes step-by-step manual, over 50 forms, and extensive reference section on materials and furnishings.

New lower price and user-friendly format.

\$89.95 per copy | Over 450 pages, softcover | Catalog no. 67301

Electrical Estimating Methods

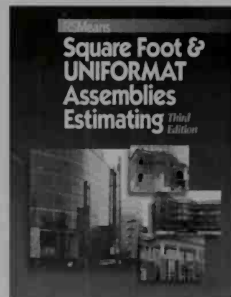


3rd Edition

Expanded edition includes sample estimates and cost information in keeping with the latest version of the CSI MasterFormat and UNIFORMAT II. Complete coverage of fiber optic and uninterruptible power supply electrical systems, broken down by components, and explained in detail. Includes a new chapter on computerized estimating methods. A practical companion to RSMeans Electrical Cost Data.

\$64.95 per copy | Over 325 pages, hardcover | Catalog no. 67230B

Square Foot & UNIFORMAT Assemblies Estimating Methods

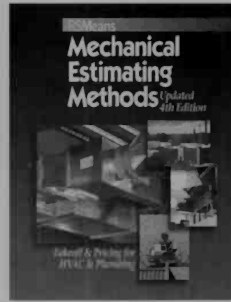


3rd Edition

Develop realistic square foot and assemblies costs for budgeting and construction funding. The new edition features updated guidance on square foot and assemblies estimating using UNIFORMAT II. An essential reference for anyone who performs conceptual estimates.

\$69.95 per copy | Over 300 pages, illustrated, softcover | Catalog no. 67145B

Mechanical Estimating Methods

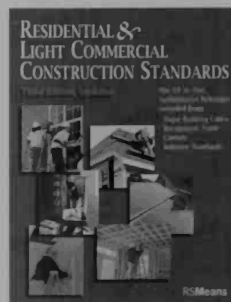


4th Edition

Completely updated, this guide assists you in making a review of plans, specs, and bid packages, with suggestions for takeoff procedures, listings, substitutions, and pre-bid scheduling for all components of HVAC. Includes suggestions for budgeting labor and equipment usage. Compares materials and construction methods to allow you to select the best option.

\$64.95 per copy | Over 350 pages, illustrated, softcover | Catalog no. 67294B

Residential & Light Commercial Construction Standards



3rd Edition,
Updated by RSMeans and contributing authors

This book provides authoritative requirements and recommendations compiled from leading professional associations, industry publications, and building code organizations. This all-in-one reference helps establish a standard for workmanship, quickly resolve disputes, and avoid defect claims. Updated third edition includes new coverage of green building, seismic, hurricane, and mold-resistant construction.

\$59.95 | Over 550 pages, illustrated, softcover | Catalog no. 67322B

Reference Books

For more information visit the RSMeans website at www.rsmeans.com

Construction Business Management

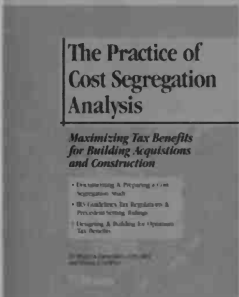


by Nick Ganaway

Only 43% of construction firms stay in business after four years. Make sure your company thrives with valuable guidance from a pro with 25 years of success as a commercial contractor. Find out what it takes to build all aspects of a business that is profitable, enjoyable, and enduring. With a bonus chapter on retail construction.

\$49.95 per copy | 200 pages, softcover | Catalog no. 67352

The Practice of Cost Segregation Analysis



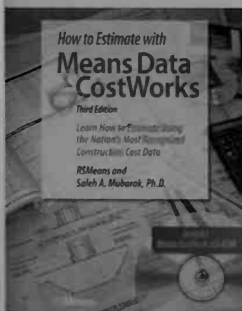
by Bruce A. Desrosiers and Wayne J. DelPico

This expert guide walks you through the practice of cost segregation analysis, which enables property owners to defer taxes and benefit from "accelerated cost recovery" through depreciation deductions on assets that are properly identified and classified.

With a glossary of terms, sample cost segregation estimates for various building types, key information resources, and updates via a dedicated website, this book is a critical resource for anyone involved in cost segregation analysis.

\$99.95 per copy | Over 225 pages | Catalog no. 67345

How to Estimate with Means Data & CostWorks

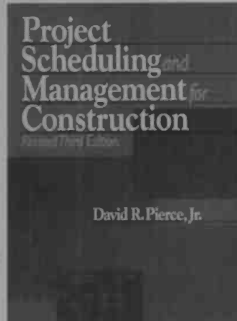


New 3rd Edition
by RSMeans and
Saleh A. Mubarak, Ph.D.

New 3rd Edition—fully updated with new chapters, plus new CD with updated CostWorks cost data and MasterFormat organization. Includes all major construction items—with more than 300 exercises and two sets of plans that show how to estimate for a broad range of construction items and systems—including general conditions and equipment costs.

\$59.95 per copy | 272 pages, softcover | Includes CostWorks CD
Catalog no. 67324B

Project Scheduling & Management for Construction

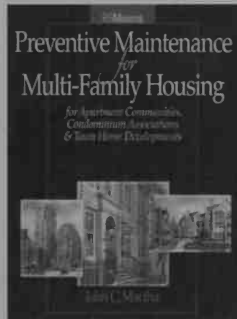


3rd Edition
by David R. Pierce, Jr.

A comprehensive yet easy-to-follow guide to construction project scheduling and control—from vital project management principles through the latest scheduling, tracking, and controlling techniques. The author is a leading authority on scheduling, with years of field and teaching experience at leading academic institutions. Spend a few hours with this book and come away with a solid understanding of this essential management topic.

\$64.95 per copy | Over 300 pages, illustrated, hardcover | Catalog no. 67247B

Preventive Maintenance for Multi-Family Housing



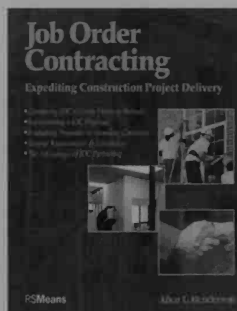
by John C. Machia

Prepared by one of the nation's leading experts on multi-family housing.

This complete PM system for apartment and condominium communities features expert guidance, checklists for buildings and grounds maintenance tasks and their frequencies, a reusable wall chart to track maintenance, and a dedicated website featuring customizable electronic forms. A must-have for anyone involved with multi-family housing maintenance and upkeep.

\$89.95 per copy | 225 pages | Catalog no. 67346

Job Order Contracting Expediting Construction Project Delivery



by Allen Henderson

Expert guidance to help you implement JOC—fast becoming the preferred project delivery method for repair and renovation, minor new construction, and maintenance projects in the public sector and in many states and municipalities. The author, a leading JOC expert and practitioner, shows how to:

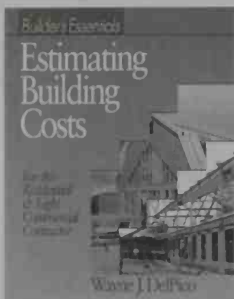
- Establish a JOC program
- Evaluate proposals and award contracts
- Handle general requirements and estimating
- Partner for maximum benefits

\$89.95 per copy | 192 pages, illustrated, hardcover | Catalog no. 67348

Reference Books

For more information visit the RSMeans website at www.rsmeans.com

Estimating Building Costs

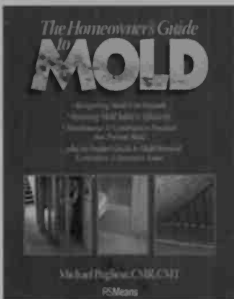


For the Residential & Light Commercial Contractor by Wayne J. DelPico

Step-by-step estimating methods for residential and light commercial contractors. Includes a detailed look at every construction specialty—explaining all the components, takeoff units, and labor needed for well-organized, complete estimates. Covers correctly interpreting plans and specifications, and developing accurate and complete labor and material costs.

\$29.95 per copy | Over 400 pages, illustrated, softcover | Catalog no. 67343

The Homeowner's Guide to Mold



By Michael Pugliese

Expert guidance to protect your health and your home.

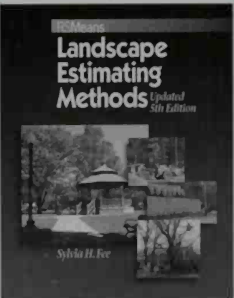
Mold, whether caused by leaks, humidity or flooding, is a real health and financial issue—for homeowners and contractors.

This full-color book explains:

- Construction and maintenance practices to prevent mold
- How to inspect for and remove mold
- Mold remediation procedures and costs
- What to do after a flood
- How to deal with insurance companies

\$21.95 per copy | 144 pages, softcover | Catalog no. 67344

Landscape Estimating Methods



5th Edition

Answers questions about preparing competitive landscape construction estimates, with up-to-date cost estimates and the new MasterFormat classification system. Expanded and revised to address the latest materials and methods, including new coverage on approaches to green building. Includes:

- Step-by-step explanation of the estimating process
- Sample forms and worksheets that save time and prevent errors

\$64.95 per copy | Over 350 pages, softcover | Catalog no. 67295C

Building & Renovating Schools



This all-inclusive guide covers every step of the school construction process—from initial planning, needs assessment, and design, right through moving into the new facility. A must-have resource for anyone concerned with new school construction or renovation. With square foot cost models for elementary, middle, and high school facilities, and real-life case studies of recently completed school projects.

The contributors to this book—architects, construction project managers, contractors, and estimators who specialize in school construction—provide start-to-finish, expert guidance on the process.

\$99.95 per copy | Over 425 pages, hardcover | Catalog no. 67342

Universal Design Ideas for Style, Comfort & Safety



by RSMeans and Lexicon Consulting, Inc.

Incorporating universal design when building or remodeling helps people of any age and physical ability more fully and safely enjoy their living spaces. This book shows how universal design can be artfully blended into the most attractive homes. It discusses specialized products like adjustable countertops and chair lifts, as well as simple ways to enhance a home's safety and comfort. With color photos and expert guidance, every area of the home is covered. Includes budget estimates that give an idea how much projects will cost.

\$21.95 | 160 pages, illustrated, softcover | Catalog no. 67354

Plumbing Estimating Methods



3rd Edition
by Joseph Galeno and
Sheldon Greene

Updated and revised! This practical guide walks you through a plumbing estimate, from basic materials and installation methods through change order analysis. *Plumbing Estimating Methods* covers residential, commercial, industrial, and medical systems, and features sample takeoff and estimate forms and detailed illustrations of systems and components.

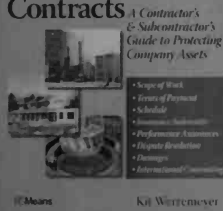
\$59.95 per copy | 330+ pages, softcover | Catalog no. 67283B

Reference Books

For more information visit the RSMeans website at www.rsmeans.com

Understanding & Negotiating Construction Contracts

Understanding & Negotiating Construction Contracts

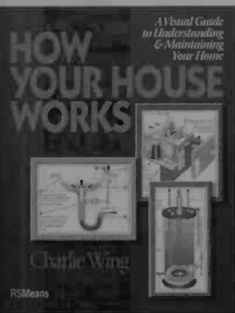


by Kit Werremeyer

Take advantage of the author's 30 years' experience in small-to-large (including international) construction projects. Learn how to identify, understand, and evaluate high risk terms and conditions typically found in all construction contracts—then negotiate to lower or eliminate the risk, improve terms of payment, and reduce exposure to claims and disputes. The author avoids “legalese” and gives real-life examples from actual projects.

\$69.95 per copy | 300 pages, softcover | Catalog no. 67350

How Your House Works

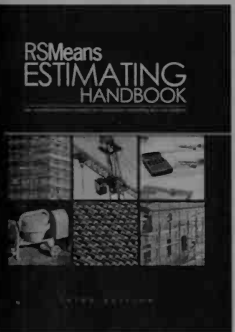


by Charlie Wing

A must-have reference for every homeowner, handyman, and contractor—for repair, remodeling, and new construction. This book uncovers the mysteries behind just about every major appliance and building element in your house—from electrical, heating and AC, to plumbing, framing, foundations and appliances. Clear, “exploded” drawings show exactly how things should be put together and how they function—what to check if they don't work, and what you can do that might save you having to call in a professional.

\$21.95 per copy | 160 pages, softcover | Catalog no. 67351

RSMeans Estimating Handbook



3rd Edition

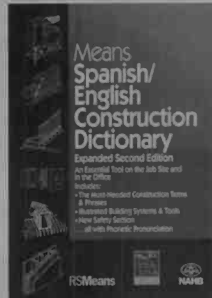
Widely used in the industry for tasks ranging from routine estimates to special cost analysis projects, this handbook has been completely updated and reorganized with new and expanded technical information.

RSMeans Estimating Handbook will help construction professionals:

- Evaluate architectural plans and specifications
- Prepare accurate quantity takeoffs
- Compare design alternatives and costs
- Perform value engineering
- Double-check estimates and quotes
- Estimate change orders

\$99.95 per copy | Over 900 pages, hardcover | Catalog No. 67276B

Spanish/English Construction Dictionary



2nd Edition
by RSMeans and the
International Code Council

This expanded edition features thousands of the most common words and useful phrases in the construction industry with easy-to-follow pronunciations in both Spanish and English. Over 800 new terms, phrases, and illustrations have been added. It also features a new stand-alone “Safety & Emergencies” section, with colored pages for quick access.

Unique to this dictionary are the systems illustrations showing the relationship of components in the most common building systems for all major trades.

\$23.95 per copy | Over 400 pages | Catalog no. 67327A

The Gypsum Construction Handbook



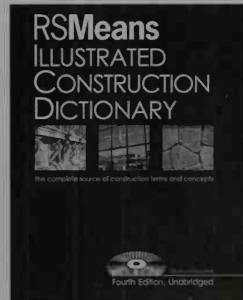
by USG

An invaluable reference of construction procedures for gypsum drywall, cement board, veneer plaster, and conventional plaster. This new edition includes the newest product developments, installation methods, fire- and sound-rated construction information, illustrated framing-to-finish application instructions, estimating and planning information, and more. Great for architects and engineers; contractors, builders, and dealers; apprentices and training programs; building inspectors and code officials; and anyone

interested in gypsum construction. Features information on tools and safety practices, a glossary of construction terms, and a list of important agencies and associations. Also available in Spanish.

\$29.95 | Over 575 pages, illustrated, softcover | Catalog no. 67357A

Means Illustrated Construction Dictionary



Unabridged 4th Edition,
with CD-ROM

Long regarded as the industry's finest, *Means Illustrated Construction Dictionary* is now even better. With nearly 20,000 terms and more than 1,400 illustrations and photos, it is the clear choice for the most comprehensive and current information. The companion CD-ROM that comes with this new edition adds extra features such as: larger graphics and expanded definitions.

\$99.95 per copy | Over 790 pages, illust., hardcover | Catalog no. 67292B

Reference Books

For more information visit the RSMeans website at www.rsmeans.com



Green Home Improvement

by Daniel D. Chiras, PhD

With energy costs rising and environmental awareness increasing, people are looking to make their homes greener. This book, with 65 projects and actual costs and projected savings help homeowners prioritize their green improvements.

Projects range from simple water savers that cost only a few dollars, to bigger-ticket items such as HVAC systems. With color photos and cost estimates, each project compares options and describes the work involved, the benefits, and the savings.

\$24.95 | 320 pages, illustrated, softcover | Catalog no. 67355

New Titles

Construction Supervision



This brand new title inspires supervisory excellence with proven tactics and techniques applied by thousands of construction supervisors over the past decade. Recognizing the unique and critical role the supervisor plays in project success, the book's leadership guidelines carve out a practical blueprint for motivating work performance and increasing productivity through effective communication.

Features:

- A unique focus on field supervision and crew management
- Coverage of supervision from the foreman to the superintendent level
- An overview of technical skills whose mastery will build confidence and success for the supervisor
- A detailed view of "soft" management and communication skills

\$90.00 per copy | Over 450 pages, softcover | Catalog no. 67358

Green Building: Project Planning & Cost Estimating



3rd Edition

Since the widely read first edition of this book, green building has gone from a growing trend to a major force in design and construction.

This new edition has been updated with the latest in green building technologies, design concepts, standards, and costs. Full-color with all new case studies—plus a new chapter on commercial real estate.

\$99.95 per copy | Over 450 pages, softcover | Catalog no. 67338B

Risk Management for Design and Construction



This book introduces risk as a central pillar of project management and shows how a project manager can be prepared for dealing with uncertainty. Written by experts in the field, *Risk Management for Design and Construction* uses clear, straightforward terminology to demystify the concepts of project uncertainty and risk.

Highlights include:

- Integrated cost and schedule risk analysis
- An introduction to a ready-to-use system of analyzing a project's risks and tools to proactively manage risks
- A methodology that was developed and used by the Washington State Department of Transportation
- Case studies and examples on the proper application of principles
- Information about combining value analysis with risk analysis

\$125.00 per copy | Over 250 pages, softcover | Catalog no. 67359

2012 Order Form

ORDER TOLL FREE 1-800-334-3509
OR FAX 1-800-632-6732

For more information visit the RSMeans website at www.rsmeans.com

Qty.	Book no.	COST ESTIMATING BOOKS	Unit Price	Total
	60062	Assemblies Cost Data 2012	\$290.95	
	60012	Building Construction Cost Data 2012	177.95	
	60112	Concrete & Masonry Cost Data 2012	177.95	
	50142	Construction Cost Indexes 2012 (subscription)	362.00	
	60142A	Construction Cost Index—January 2012	90.50	
	60142A	Construction Cost Index—April 2012	90.50	
	60142C	Construction Cost Index—July 2012	90.50	
	60142D	Construction Cost Index—October 2012	90.50	
	60302	Contr. Pricing Guide: Resid. R & R Costs 2012	59.95	
	60232	Electrical Change Order Cost Data 2012	177.95	
	60092	Electrical Cost Data 2012	177.95	
	60202	Facilities Construction Cost Data 2012	453.95	
	60302	Facilities Maintenance & Repair Cost Data 2012	395.95	
	60552	Green Building Cost Data 2012	177.95	
	60162	Heavy Construction Cost Data 2012	177.95	
	60092	Interior Cost Data 2012	137.95	
	60122	Labor Rates for the Const. Industry 2012	395.95	
	60182	Light Commercial Cost Data 2012	132.95	
	60022	Mechanical Cost Data 2012	174.95	
	60152	Open Shop Building Const. Cost Data 2012	152.95	
	60212	Plumbing Cost Data 2012	179.95	
	60042	Commercial Renovation Cost Data 2012	144.95	
	60172	Residential Cost Data 2012	127.95	
	60282	Site Work & Landscape Cost Data 2012	172.95	
	60052	Square Foot Costs 2012	187.95	
	62011	Yardsticks for Costing (2011)	174.95	
	62012	Yardsticks for Costing (2012)	176.95	
		REFERENCE BOOKS		
	67329	Bldrs Essentials: Best Bus. Practices for Bldrs	29.95	
	67298A	Bldrs Essentials: Framing/Carpentry 2nd Ed.	24.95	
	67298AS	Bldrs Essentials: Framing/Carpentry Spanish	24.95	
	67307	Bldrs Essentials: Plan Reading & Takeoff	35.95	
	67342	Building & Renovating Schools	99.95	
	67339	Building Security: Strategies & Costs	89.95	
	67353	Complete Book of Framing	29.95	
	67146	Concrete Repair & Maintenance Illustrated	69.95	
	67352	Construction Business Management	49.95	
	67358	Construction Supervision	90.00	
	67314	Cost Planning & Est. for Facil. Maint.	89.95	
	67328A	Designing & Building with the IBC, 2nd Ed.	99.95	
	67230B	Electrical Estimating Methods, 3rd Ed.	64.95	
	67343	Estimating Bldg. Costs for Resi. & Lt. Comm.	29.95	
	67276B	Estimating Handbook, 3rd Ed.	99.95	
	67318	Facilities Operations & Engineering Reference	109.95	
	67301	Facilities Planning & Relocation	89.95	
	67338B	Green Building: Proj. Planning & Cost Est., 3rd Ed.	99.95	
	67355	Green Home Improvement	24.95	
	67357A	The Gypsum Construction Handbook	29.95	
	67357S	The Gypsum Construction Handbook (Spanish)	29.95	
	67148	Heavy Construction Handbook	99.95	
	67323	Historic Preservation: Proj. Planning & Est.	99.95	

Qty.	Book no.	REFERENCE BOOKS (Cont.)	Unit Price	Total
	67308E	Home Improvement Costs—Int. Projects, 9th Ed.	24.95	
	67309E	Home Improvement Costs—Ext. Projects, 9th Ed.	24.95	
	67344*	Homeowner's Guide to Mold	21.95	
	67324B	How to Est.w/Means Data & CostWorks, 3rd Ed.	59.95	
	67351	How Your House Works	21.95	
	67282A	Illustrated Const. Dictionary, Condensed, 2nd Ed.	59.95	
	67292B	Illustrated Const. Dictionary, w/CD-ROM, 4th Ed.	59.95	
	67344	Job Order Contracting	59.95	
	67295C	Landscape Estimating Methods, 5th Ed.	64.95	
	67341	Life Cycle Costing for Facilities	59.95	
	67294B	Mechanical Estimating Methods, 4th Ed.	64.95	
	67283B	Plumbing Estimating Methods, 3rd Ed.	59.95	
	67345	Practice of Cost Segregation Analysis	59.95	
	67346	Preventive Maint. for Multi-Family Housing	89.95	
	67326	Preventive Maint. Guidelines for School Facil.	149.95	
	67247B	Project Scheduling & Manag. for Constr. 3rd Ed.	64.95	
	67322B	Resi. & Light Commercial Const. Stds., 3rd Ed.	59.95	
	67359	Risk Management for Design & Construction	125.00	
	67327A	Spanish/English Construction Dictionary, 2nd Ed.	24.95	
	67145B	Sq. Ft. & Assem. Estimating Methods, 3rd Ed.	69.95	
	67321	Total Productive Facilities Management	79.95	
	67350	Understanding and Negotiating Const. Contracts	69.95	
	67303B	Unit Price Estimating Methods, 4th Ed.	59.95	
	67354	Universal Design	21.95	
	67319A	Value Engineering: Practical Applications	79.95	

MA residents add 6.25% state sales tax

Shipping & Handling**

Total (U.S. Funds)*

Prices are subject to change and are for U.S. delivery only. *Canadian customers may call for current prices. **Shipping & handling charges: Add 7% of total order for check and credit card payments. Add 9% of total order for invoiced orders.

Send order to: ADDV-1000

Name (please print) _____

Company _____

☐ Company

☐ Home Address _____

City/State/Zip _____

Phone # _____ PO. # _____

(Must accompany all orders being billed)

Mail to: RSMeans, 700 Longwater Drive, Norwell, MA 02061

RSMeans Project Cost Report

By filling out this report, your project data will contribute to the database that supports the RSMeans Project Cost Square Foot Data. When you fill out this form, RSMeans will provide a \$30 discount off one of the RSMeans products advertised in the preceding pages. Please complete the form including all items where you have cost data, and all the items marked [X].

\$30.00 Discount per product for each report you submit

Project Description (no remodeling projects, please)

☒ Building Use (Office School...) _____	Owner _____
☒ Address (City, State) _____	Architect _____
	General Contractor _____
☒ Total Building Area (SF) _____	☒ Bid Date _____
☒ Ground Floor (SF) _____	☒ Typical Bay Size _____
☒ Frame (Wood, Steel...) _____	☒ Capacity _____
☒ Exterior Wall (Brick, Tilt-up...) _____	☒ Labor Force: _____ % Union _____ % Non-Union
☒ Basement: (check one) ☐ Full ☐ Partial ☐ None	☒ Project Description (Circle one number in each line.)
☒ Number of Stories _____	1. Economy 2. Average 3. Custom 4. Luxury
☒ Floor-to-Floor Height _____	1. Square 2. Rectangular 3. Irregular 4. Very Irregular
☒ Volume (C.F.) _____	Comments _____
% Air Conditioned _____ Tons _____	
Total Project Cost \$ _____	

A	☒ General Conditions	\$
B	☒ Site Work	\$
C	☒ Concrete	\$
D	☒ Masonry	\$
E	☒ Metals	\$
F	☒ Wood & Plastics	\$
G	☒ Thermal & Moisture Protection	\$
GR	Roofing & Flashing	\$
H	☒ Doors and Windows	\$
J	☒ Finishes	\$
JP	Painting & Wall Covering	\$

K	☒ Specialties	\$
L	☒ Equipment	\$
M	☒ Furnishings	\$
N	☒ Special Construction	\$
P	☒ Conveying Systems	\$
Q	☒ Mechanical	\$
QP	Plumbing	\$
QB	HVAC	\$
R	☒ Electrical	\$
S	☒ Mech./Elec. Combined	\$

Please specify the RSMeans product you wish to receive.
Complete the address information.

Product Name _____

Product Number _____

Your Name _____

Title _____

Company _____

☐ Company ☐ Home Street Address _____

City, State, Zip _____

Method of Payment: _____

Credit Card # _____

Expiration Date _____

Check _____

Purchase Order _____

Phone Number _____

(for those not comfortable mailing in credit card information)

RSMeans
a division of Reed Construction Data
Square Foot Costs Department
700 Longwater Drive
Norwell, MA 02061

Return by mail or fax 888-492-6770.

Installing Contractor's Overhead & Profit

Below are the **average** installing contractor's percentage mark-ups applied to base labor rates to arrive at typical billing rates.

Column A: Labor rates are based on union wages averaged for 30 major U.S. cities. Base rates including fringe benefits are listed hourly and daily. These figures are the sum of the wage rate and employer-paid fringe benefits such as vacation pay, employer-paid health and welfare costs, pension costs, plus appropriate training and industry advancement funds costs.

Column B: Workers' Compensation rates are the national average of state rates established for each trade.

Column C: Column C lists average fixed overhead figures for all trades. Included are Federal and State Unemployment costs set at 7.8%; Social Security Taxes (FICA) set at 7.65%; Builder's Risk Insurance costs set at 0.44%; and Public Liability costs set at 2.02%. All the percentages except those for Social Security Taxes vary from state to state as well as from company to company.

WITHDRAWN

Columns D and E: Percentages in Columns D and E are based on the presumption that the installing contractor has annual billing of \$4,000,000 and 47.5% overhead percentages may increase with smaller annual billing. The overhead percentages for any given contractor may vary greatly and depend on a number of factors, such as the contractor's annual volume, engineering and logical support costs, and staff requirements. The figures for overhead and profit will also vary depending on the type of job, the job location, and the prevailing economic conditions. All factors should be examined very carefully for each job.

Column F: Column F lists the total of Columns B, C, D, and E.

Column G: Column G is Column A (hourly base labor rate) multiplied by the percentage in Column F (O&P percentage).

Column H: Column H is the total of Column A (hourly base labor rate) plus Column G (Total O&P).

Column I: Column I is Column H multiplied by eight hours.

		A		B	C	D	E	F	G	H	I
Abbr.	Trade	Base Rate Incl. Fringes		Workers' Comp. Ins.	Average Fixed Over-head	Over-head	Profit	Total Overhead & Profit		Rate with O & P	
		Hourly	Daily					%	Amount	Hourly	Daily
Skwk	Skilled Workers Average (35 trades)	\$45.40	\$363.20	13.7%	17.9%	13.0%	10%	54.6%	\$24.80	\$ 70.20	\$561.60
	Helpers Average (5 trades)	33.30	266.40	14.9		11.0		53.8	17.90	51.20	409.60
	Foreman Average, Inside (\$5.00 over trade)	45.90	367.20	13.7		13.0		54.6	25.05	70.95	567.60
	Foreman Average, Outside (\$2.00 over trade)	47.40	379.20	13.7		13.0		54.6	25.90	73.30	586.40
	Common Building Laborers	35.10	280.80	15.0		11.0		53.9	18.90	54.00	432.00
Clab	Asbestos/Insulation Workers/Pipe Coverers	48.85	390.80	11.9		16.0		55.8	27.25	76.10	608.80
	Boilermakers	56.40	451.20	10.6		16.0		54.5	30.75	87.15	697.20
	Bricklayers	44.10	352.80	12.1		11.0		51.0	22.50	66.60	532.80
	Bricklayer Helpers	35.60	284.80	12.1		11.0		51.0	18.15	53.75	430.00
	Carpenters	44.10	352.80	15.0		11.0		53.9	23.75	67.85	542.80
Cefi	Cement Finishers	42.35	338.80	8.2		11.0		47.1	19.95	62.30	498.40
	Electricians	51.55	412.40	5.6		16.0		49.5	25.50	77.05	616.40
	Elevator Constructors	70.85	566.80	5.9		16.0		49.8	35.30	106.15	849.20
	Equipment Operators, Crane or Shovel	47.80	382.40	9.0		14.0		50.9	24.35	72.15	577.20
	Equipment Operators, Medium Equipment	46.55	372.40	9.0		14.0		50.9	23.70	70.25	562.00
Eqit	Equipment Operators, Light Equipment	44.75	358.00	9.0		14.0		50.9	22.80	67.55	540.40
	Equipment Operators, Oilers	41.25	330.00	9.0		14.0		50.9	21.00	62.25	498.00
	Equipment Operators, Master Mechanics	48.00	384.00	9.0		14.0		50.9	24.45	72.45	579.60
	Glaziers	42.75	342.00	12.6		11.0		51.5	22.00	64.75	518.00
	Lathers	39.25	314.00	7.8		11.0		46.7	18.35	57.60	460.80
Marb	Marble Setters	41.10	328.80	12.1		11.0		51.0	20.95	62.05	496.40
	Millwrights	46.05	368.40	8.4		11.0		47.3	21.80	67.85	542.80
	Mosaic & Terrazzo Workers	40.40	323.20	8.0		11.0		46.9	18.95	59.35	474.80
	Painters, Ordinary	38.25	306.00	10.7		11.0		49.6	18.95	57.20	457.60
	Painters, Structural Steel	39.30	314.40	42.2		11.0		81.1	31.85	71.15	569.20
Pape	Paper Hangers	38.50	308.00	10.7		11.0		49.6	19.10	57.60	460.80
	Pile Drivers	42.80	342.40	16.8		16.0		60.7	26.00	68.80	550.40
	Plasterers	40.35	322.80	10.8		11.0		49.7	20.05	60.40	483.20
	Plasterer Helpers	35.75	286.00	10.8		11.0		49.7	17.75	53.50	428.00
	Plumbers	54.60	436.80	6.9		16.0		50.8	27.75	82.35	658.80
Rodm	Rodmen (Reinforcing)	49.10	392.80	17.8		14.0		59.7	29.30	78.40	627.20
	Roofers, Composition	37.40	299.20	28.8		11.0		67.7	25.30	62.70	501.60
	Roofers, Tile & Slate	37.55	300.40	28.8		11.0		67.7	25.40	62.95	503.60
	Roofers, Helpers (Composition)	27.85	222.80	28.8		11.0		67.7	18.85	46.70	373.60
	Sheet Metal Workers	52.15	417.20	8.5		16.0		52.4	27.35	79.50	636.00
Spri	Sprinkler Installers	54.05	432.40	7.0		16.0		50.9	27.50	81.55	652.40
	Steamfitters or Pipefitters	55.70	445.60	6.9		16.0		50.8	28.30	84.00	672.00
	Stone Masons	44.35	354.80	12.1		11.0		51.0	22.60	66.95	535.60
	Structural Steel Workers	49.35	394.80	36.9		14.0		78.8	38.90	88.25	706.00
	Tile Layers	40.75	326.00	8.0		11.0		46.9	19.10	59.85	478.80
Tilh	Tile Layers Helpers	32.10	256.80	8.0		11.0		46.9	15.05	47.15	377.20
	Truck Drivers, Light	34.35	274.80	12.8		11.0		51.7	17.75	52.10	416.80
	Truck Drivers, Heavy	35.30	282.40	12.8		11.0		51.7	18.25	53.55	428.40
	Welders, Structural Steel	49.35	394.80	36.9		14.0		78.8	38.90	88.25	706.00
	*Wrecking	35.10	280.80	30.4		11.0		69.3	24.30	59.40	475.20

*Not included in averages

Building Construction Cost Data

RSMeans Building Construction Cost Data 2012

70th Annual Edition

Get the confidence and know-how you need to deliver more accurate cost estimates and improve profitability!

The 70th edition of this bestselling cost guide has been updated and expanded to provide you with the information you need to:

- Estimate projects with confidence and accuracy.
- Improve project planning and budgeting.
- Reduce risk.

Explore detailed construction costs, arranged in the CSI MasterFormat 2010 system, and leverage the resources available in the reference section to construct a winning estimate.

What you'll find inside:

- NEW! Completely updated and expanded with over 23,000 unit costs for building components
- NEW! Sustainable construction costs
- NEW! A complete sample estimate to guide customization and improve accuracy
- City Cost Indexes and Location Factors for over 930 U.S. and Canadian locations
- Equipment rental costs
- Crew sizing, labor hours, and labor rates
- Square foot costs

Plus:

- Get access to free quarterly cost updates for a full year!

UNIT PRICES (organized in MasterFormat™ 2010)

1 General Requirements	11 Equipment	28 Electronic Safety & Security
2 Existing Conditions	12 Furnishings	31 Earthwork
3 Concrete	13 Special Construction	32 Exterior Improvements
4 Masonry	14 Conveying Equipment	33 Utilities
5 Metals	21 Fire Suppression	34 Transportation
6 Wood, Plastics & Composites	22 Plumbing	35 Waterway & Marine
7 Thermal & Moisture Protection	23 Heating, Ventilating & Air Conditioning	41 Material Processing & Handling Equipment
8 Openings	26 Electrical	44 Pollution & Waste Control Equipment
9 Finishes	27 Communications	46 Water & Wastewater Equipment
10 Specialties		

Visit us online:

RSMeans offers an extensive line of cost data products in book, online, and CD format, along with professional development seminars, reference books, market analytics, and more. Visit **www.rsmeans.com** to learn what RSMeans can do for you!

RSMeans Catalog No. 60012
Construction: Technical/Professional
U.S. price \$177.95



 Reed Construction Data

